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COMPUTER-BASED INSTRUCTION
WITHIN
TRANSPORTATION MOBILITY TRAINING

THESIS

Melissa A. Higginbotham
Captain, USAF

AFIT/GLM/LSM/90S-24

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AIR UNIVERSITY
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Wright-Patterson Air Force Base, Ohio

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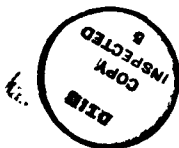
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COMPUTER-BASED INSTRUCTION
WITHIN TRANSPORTATION MOBILITY TRAINING

THESIS

Presented to the Faculty of the School of Systems
and Logistics of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Logistics Management

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September 1990

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Preface

The purpose of this study was to test whether computer-based instruction was more effective than instructor-led for teaching transportation mobility. This line of inquiry led to the development of an air passenger terminal computer-based instruction (CBI) module which was subsequently tested in an experiment conducted at Wright-Patterson AFB, Ohio.

In preparing for this experiment, I am deeply indebted to the Wright-Patterson transportation mobility training section. Their assistance was invaluable in validating, setting up, and conducting the experiment. I am especially indebted to Mr. Odell Norman who taught the instructor-led portion of the experiment. I also wish to thank my thesis advisor, Lt Col P. Miller, and my faculty advisor, Maj R. McCauley, for their ever present catalytic motivation and scrutinizing editing in ensuring a continuous focus on my thesis goals. A special word of thanks belongs to LT D. McNeeley (USN) who never failed to assist whenever I ran into a problem developing the CBI. Finally, the closing round of applause goes to my husband Robert who brewed innumerable pots of coffee, prepared meals, ensured a supply of clean uniforms, and developed vast reserves of patience to ensure I completed my thesis.

Melissa A. Higginbotham

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Abstract

Computer-based instruction (CBI) was compared with instructor-led training using a pretest/posttest experimental design. The purpose was to demonstrate whether CBI was more effective than instructor-led for teaching transportation mobility. Lesson content was based on the Air Passenger Terminal (APT) function of transportation mobility. Results of the experiment indicated there was no statistical difference ($\alpha = .05$) between the two methods. An attitudinal survey administered to the CBI sample group indicated that participants felt CBI would be useful in supplementing instructors but not totally eliminating them. Demographic information revealed that survey results were independent of the number of years of computer usage and years of mobility experience.

Signatures: These

COMPUTER-BASED INSTRUCTION
WITHIN TRANSPORTATION MOBILITY TRAINING

I. Introduction

Background

National Security Policy is the broad course of action the United States pursues to preserve its freedom as a nation (13:1-2). Events or situations that threaten U.S. security or vital interests normally result in reliance on the military to support national security objectives in pursuit of national security policy (13:1-2). Therefore, national military objectives and the military forces must support the attainment of national security objectives (13:1-2).

Towards this goal, the Department of Defense (DOD) creates and sustains military forces capable of deterring attacks against the United States and its interests, protecting the U.S. from political coercion, and fighting as long as necessary to achieve U.S. political objectives (13:1-2; 17:7). The Air Force role in supporting military objectives is to control the aerospace environment and thereby neutralize the enemy (13:1-3).

Air Force personnel are capable of being responsive and mobile, demonstrating intent of action through

deployments or shows of force (13:2-3). Mobile operations may encompass movement, resupply, or support of deployed forces (13:2-3). Though Air Force people can deploy quickly, the status of their readiness posture dictates the level of time and place utility. Therefore, stress is put on mobility, or as AFM 1-1 defines it, "moving combat air power where it is needed most and repositioning that power to meet changing needs" (13:2-3). This definition of mobility equates to the concept of strategic mobility as enumerated by JCS Pub 1: "the capability to deploy and sustain military forces worldwide in support of national strategy" (66:29).

To counter threats to American interests and achieve national security goals, the U.S. must have the capability to "rapidly project and sustain U.S.-based and forward deployed forces on a global basis" (10:26). Confronted with defense requirements worldwide, a balanced strategic mobility program is essential to project national power overseas (10:26,28).

Transportation is a vital link in the nation's ability to mobilize and deploy troops during wartime or contingencies (18:iii). In any scenario, transportation personnel will be responsible for moving thousands of troops and millions of tons of cargo to destinations worldwide (18:iii). Once the troops and cargo are in place, it is up to the transporters to ensure the resupply

of critical items needed to sustain mission capability (19:1). Strategic mobility, therefore, includes methods of transportation, ports, and people, functioning as an integrated whole, working to deploy forces from origin to final destinations in the theater on time; and then sustain these forces during combat (70:4).

The transportation career field drives the execution of a base's mobility plan (19:1), in addition to providing a major portion of the people augmenting mobility work centers. Oftentimes, these augmentees perform functions outside of their primary career field, operating these work centers as an additional duty (16:5). Training therefore becomes a key aspect of logistics.

General Issue

The quality of people and their training is very influential in determining the course of combat and of war itself (6:3). There is neither a substitute for quality training nor an alternative to readiness, for readiness is the foundation of deterrence (72:5).

Quality training results in quality people (72:5). This gives America the flexibility needed to fulfill strategic goals, while countering numerical and geographical advantages of adversaries (72:5). Training motivates people by encouraging initiative and fostering an eagerness to learn, yet changes to meet the demands of the environment (28:22; 72:6). It also results in more

efficient and effective uses of resources, assuring a more consistent level of readiness (72:5). Training therefore results in people that are technically competent and ready to perform their wartime jobs (72:10). As a result, training becomes the cornerstone of combat readiness (72:9).

Defense budget reductions over the past four years and proposed reductions of \$24 billion in 1991 are increasing the challenge of providing an Air Force capable of deterrence (45:3; 57:A8; 75:28). One of the ways to ensure the readiness of these forces is by training programs (75:28).

Along with budget reductions, proposed manpower reductions of 36,500 in 1991 and an additional 34,000 through 1995 are forcing the Air Force to examine innovative approaches to training (45:3; 47:16; 62:446; 73:12). This especially impacts mobility training, where, in some cases, bases lack instructor or functional expertise (16:3). At those bases that did have mobility training instructors, the qualifications of the instructor were not established (16:4).

Transportation mobility instructors teach augmentees the skills needed to operate the mobility work centers. This training can be broken down into four parts: air and surface cargo terminals, transportation control unit, passenger terminal, and submotorpool (vehicle drivers and

dispatchers) training (20:20). Augmentees within the mobility work centers incheck, marshall, transport, and load passengers, equipment, and cargo (20:20). Transportation mobility instructors also teach deploying units the skills necessary to prepare people, equipment, and cargo for deployment. Necessary skills include pallet buildup, marking and placarding of rolling stock (vehicles and nonpowered wheeled equipment), and certification of hazardous cargo.

Mobility instructor positions are frequently filled at the expense of other squadron positions. Additionally, training is done at the expense of the normal squadron mission workload (65:5). In 1988, the Air Force Functional Management Inspection Team stated that mobility training was inefficient, and this was due in part to the lack of alternatives to classroom training (16:2).

These shortfalls open the door to applying state-of-the-art technology to training within the Air Force (55:18). Computer-based instruction (CBI) is the training medium of the future, as advances in automated systems are increasing the efficiency of transportation and logistics planning and operations; the challenge is to continue the momentum (55:18; 62:447).

Statement of the Problem

The Air Force recognizes that there is a need to institute methods of training that would ease the lost

manhour impact on day-to-day work centers, yet maintain a high level of mission readiness (16:6). Computer-based instruction (CBI) offers an alternative approach, a self-study method that could ease the classroom workload by supplementing unit level training (15:18). This line of reasoning, therefore, results in the following question: Is CBI better than the lecture method for teaching transportation mobility?

Objective Statement

This research will develop a CBI program at the Air Passenger Terminal (APT) level. The CBI program will be compared with the traditional lecture method to determine its effectiveness.

Investigative Questions

The following investigative questions are set forth to determine if CBI is an effective alternative to classroom training in the area of transportation mobility.

1. What are the advantages and disadvantages to CBI versus the traditional classroom method?
2. What are the steps in CBI courseware development?
3. Is CBI development possible in the transportation career field?
4. Does CBI provide equal or greater comprehension (i.e., effective) than classroom training?

Scope of the Study

Transportation mobility is such a broad field, that this study had to be limited. The majority of the transportation mobility actions are quite detailed, and in many cases, very technical. This is the case with the Air Cargo Terminal (ACT). The Submotorpool covered too limited an area, focusing mainly on the dispatching and driving of vehicles. The Transportation Resources Control Center/Transportation Control Unit (TRCC/TCU) covered too broad an area, dealing with management decisions encompassing all areas of transportation mobility. Therefore, the scope of this endeavor will be focused on the APT, specifically the management actions and knowledge needed to control and manifest passengers during mobility. As the transportation passenger nerve center, the APT monitors and controls the transportation actions required to process passengers and resolve problem areas (20:21).

Limitations

The number and choice of bases on which to field test the CBI package were driven by time. Therefore, Wright-Patterson was chosen as the test site to field test the CBI package after development. Wright-Patterson becomes a major aerial port of embarkation during wartime, so mobility training actions performed and lessons learned should be applicable throughout the Air Force.

The authoring courseware available limited the type of CBI package that was developed. Again, financial and availability considerations, along with ease of use pointed towards the use of an authoring system called TUTOR.COM, which is strictly a tutorial based on the drill and practice method. TUTOR.COM is site licensed (with unlimited distribution) by the Air Force Institute of Technology for \$500, and was the only authoring system available at the start of this experiment. MERLIN, an authoring program developed by the Air Force, was available, but requires a knowledge of programming to develop courseware. TUTOR.COM does not require prior programming knowledge.

Conclusion

Chapter I addressed some of the issues behind fielding a quality training program in mobility. Budget and manpower reductions impact mobility training and open the door to alternative approaches that could ease the classroom workload. CBI was promulgated as a feasible alternative, and four investigative questions were set forth to determine the efficacy of CBI versus the lecture method in the area of transportation mobility. Time factors limited the scope and location of the study. The study focused on the APT and was field tested at Wright-Patterson, a major aerial port of embarkation during wartime. Wartime aerial port status drove the

assumption that results of this study would be representative of the Air Force and applicable service-wide.

Chapter II illustrates the advantages and disadvantages of CBI, both in the commercial world and the armed services, as found in the current educational, training, and logistical literature. The second part of the chapter describes issues in planning and developing CBI. Chapter III addresses the methodology used for conducting a CBI versus instructor-led experiment, and Chapter IV analyzes the results. Finally, Chapter V proffers conclusions of the study and recommendations for future research.

II. Literature Review

The capability of microcomputers requires a reexamination of established institutional methods of teaching. Microcomputers may serve as a potentially powerful educational tool that can provide better instruction.

As the key player in computer based instruction (CBI), the computer can deliver text, graphics, animation, and sound, and can be supplemented with video images and voice. Thus, computers have a versatility that both educational and training environments are beginning to find valuable, seeing the time and money spent in developing quality educational and training packages as a worthwhile investment. Yet any educational tool has its advantages and disadvantages which should be weighed to reduce the potential for failure.

Advantages

Computers can make instruction more effective and efficient by allowing students to review lessons and work on weak areas during times when the instructor is occupied elsewhere. With the advent of CBI, learning becomes more flexible, with lesson times adapted to student receptivity (34:22). A student can be trained or educated wherever and whenever it is convenient, as learning is no longer

dependent on location (34:22; 44:19; 78:282). Software could even be sent home with the student for use on a home computer. This has the potential to enhance home learning and ultimately retention of knowledge.

CBI is consistent in its presentation; the lesson will not change when instructors rotate (11:19; 26:31; 62:447). It can deliver the same material repeatedly in a nonthreatening atmosphere, allowing effective development of skills and eventual mastery without a learning block developing due to a teacher's preconception of a student's learning abilities (3:8; 26:31; 48:517). Sequencing of material within CBI allows the lesson to be developed using a building block approach (26:31; 40:16). Courseware (CBI software) can be built with earlier lessons phasing into increasingly more difficult sections calling for a higher level of cognitive processes (40:18). Also, unique phrasing, when used, permits the instructor to imprint some personality onto the lessons (40:16). Lessons can become more than a page turning exercise.

Computers allow one-on-one learning with immediate feedback to the user (48:516; 50:13; 78:282). Feedback is a necessary and important part of any instructional system, as it is used to stimulate and motivate people (61:225). Feedback, whether positive or negative, functions as a corrective device to guide students toward a desired learning outcome (40:16). In CBI, feedback can

be visual or auditory: colors, flashing lights, animated graphics, beeps, or music (none has yet been shown to be more effective than another). Great care should be taken that feedback neither obscures nor detracts from the lesson, but supports its objectives of assisting the student in greater understanding of particular problems (61:226). In addition to the students, CBI becomes a vital source of feedback to lecturers, letting them know what type of teaching approach works best for each student (67:117). Thus, "a feedback loop based on the CAL (computer-assisted learning) programs is completed which leads to improved teaching and improved learning" (67:117).

Instruction can be adapted to the individual, allowing students to work at their own pace (53:44; 59:151). Slow learners can remediate portions they need help with, while quick students can disregard areas and advance to more difficult sections (1:2). The amount of time students spend learning is proportional to their various learning speeds, abilities, and preferences, ensuring one can quickly and easily adapt learning objectives to individual and group learning styles (51:74; 68:444). CBI can therefore make it easy to meet individual needs for initial and refresher training (74:19). Allowing instruction to be managed in more individualized ways facilitates the learning of important

concepts, subsequently reducing learning time (11:19; 37:388). In addition, students are in control of, and responsible for the teaching-learning process (63:32; 78:282). Thus, students are motivated to reach their full potential in all areas of the learning process. This was evidenced at the University of Ulster, Northern Ireland, where computer-based instruction was demonstrated to result in higher evaluating ability, and better retention, comprehension, and application of knowledge than classes taught by the human teacher (78:283).

The Arkansas Commission on MicroComputer Instruction found CBI that assists teachers can increase learning 10-40 percent (71:5). These results were contingent on specifically defined objectives, appropriate software, and 12-20 minutes of pedagogically sound CBI, 4 times a week per student (71:5). The Commission reported students using computers as an aid to instruction "gained 24-29 percent of a year's growth in selected studies after a year, over students in control groups with similar backgrounds" (71:5). And in the Calvert County Public Schools, Maryland, national achievement test scores increased as a result of using computer-assisted instruction on a routine basis (31:49). Demers agreed with this concept when he stated: "Sit a student down in front of a computer, let him learn at his own pace, and

you will enhance his ability to retain material and save money in the process" (11:19).

CBI can be operated on any kind or type of computer, and in comparison with previous technologies such as instructional television or classroom films, it tends to be more readily accessible, more "user friendly," more interactive with users, and cheaper (27:92). Data Base Management, Inc., Manchester, Connecticut, performed a business study and found to develop 20 hours of instruction would cost 47 percent more to develop for an instructor-led training course than computer-based training (74:21). Saylor and Waychoff in their speech before the Twenty-Third Annual Symposium of the Society of Logistics Engineers stated "once developed, CBI is cheaper than the lecture method for training a large student population" (62:447). In 1987, Coca-Cola Foods evaluated computer-based training and found it increased plant efficiency (based on machine-output data) by seven percent, which equated to a planned savings of \$1,130,000 over five years (52:4). Thus, Witthuhn might not be out of line when she suggests that "technology might be used to deliver instruction, perhaps more effectively, and with lower cost than teachers could" (80:27).

Disadvantages

A real limitation in deploying CBI is the upfront hardware and software costs (14:1; 32:20; 62:447).

Although advances in microcomputers have eliminated both the need for installing stationary mainframe computers and their high associated costs, schools and businesses find initial costs for hardware and software to be prohibitive within steadily declining budgets. Thus, it can be difficult to convince administrators that spending a large portion of their budget on CBI can be a wise investment.

The major problem for administrators is not the cost of one microcomputer, but the costs of enough to form a computer lab dedicated to computer-based or assisted instruction (30:22; 41:31). Computer labs would allow group instruction in subjects as diverse as physics, music, math, or computer programming. Yet, despite the costs, their presence is growing in educational institutions, though their presence in the form of labs is still limited (41:31).

Once the decision is made to invest in a system, the next roadblock is quality and affordable software. Little advanced planning appears to occur prior to development, resulting in unsuitable software (4:1-2; 54:21). Software design, as well as material presentation, will make or break a CBI program (62:448; 79:34). Therefore, the instructional characteristics of commercially available software (courseware) are of crucial importance to the effectiveness of CBI (54:21).

There is a vast array of expensive commercial courseware on the market, but it does not always match the needs of the classroom, and cannot be modified by the instructor (58:37; 81:991). Some of the negative attributes in existing programs are poor pedagogical design, the presence of factual errors, incompatibility with the school's hardware, and inadequate instructions for the program (81:991). Pedagogical design can be improved by using a clear structure to enable learners to mentally keep their place within the lesson; text and graphics should be in expected places with headers showing learners where they are; lessons should be divided into modules to allow easier assimilation; and information on each screen should be limited to permit learners to absorb faster (36:47). In addition, user manuals, which are easy to read and understand, should accompany the program (30:21; 60:53).

Problems with factual errors and hardware incompatibility, along with unclear instruction manuals, can be attributed to development by private companies or individuals with no background in education, knowledge of curriculum or instructional design, nor psychology of learning (25:14). Yet, there are some high quality, low-cost software packages available, usually designed by individual teachers for use within their own classrooms. In some states, organizations such as the Minnesota

Educational Computing Consortium are providing a forum for teachers to share self-designed software/courseware packages (81:991).

Because of the inadequacy of commercial courseware, teachers see self-design as the way to have low-cost, high quality courseware that meets their course objectives. One of the drawbacks to self-design is that the process is time consuming, as each hour of instruction can take up to 200 hours to develop (74:21). Another drawback to self-design is that teachers are usually not trained in computer use and elementary programming (50:14). In 1986, England's Department of Education and Science suggested teachers should be trained for effective use of the computer in teaching (2:82). Their report went on to say:

Training should be done in three stages:

1. Computer awareness,
2. The use of subject specific software and its place in the curriculum,
3. The use of programs for which the teacher provides input (2:82).

If teachers do not receive training, schools take the chance of a vicious cycle developing: nontraining of teachers leads to fear of computers, which leads to resistance to change paired with a negative teacher attitude (39:355). The result is either poorly designed CBI or none at all. Either way, the potential of CBI does

not manifest itself, and teachers close their minds, and therefore their students' minds to innovation.

CBI in the Armed Services

Findings on CBI in the armed services appear to be inconsistent. In 1983, 48 sites where the military had instituted CBI were reviewed for evidence of learning achievement. In 32 of these cases, instructional effectiveness was found to be about equal for CBI and conventional instruction, 15 were considered to be slightly superior in learning for CBI, and 1 was slightly poorer (64:12). A study of CBI at the U.S. Army Missile and Munitions Center and School showed inconsistent results also. Though CBI was found to be effective for the TOW Field Test Site Training Course, test results for the HAWK Continuous Wave Radar Repair Training Course failed to show any differences between CBI and non-CBI students (64:13). The Army also discovered that CBI would save time for electronics courses; yet the Navy found in San Diego that the time savings were not there (64:6).

In 1986, Shlechter examined research evidence for CBI in military training on behalf of the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI). He stated:

Consistent empirical evidence does not exist to support or deny claimed advantages of CBI over other instructional media for (a) reducing training time; (b) reducing life-cycle costs; (c) facilitating students' mastery of the instructional materials; (d) accommodating individual learning differences; and

(e) motivating students' learning. CBI's inherent superiority as a primary instructional medium has thus not been established. (64:vii)

The report went on to say, though, that the future of CBI looks promising for its potential ability to help slow learners and positively impact students' cognitive processes (64:vii).

Still, Thoreson in his case study for ARI on automation of Army classroom teaching reports that automating courses is not an option, since computers will be used in the classroom as a result of their use on the job (69:19). He goes on to state:

This automation requirement is policy background for all questions about the cost effectiveness of CBT. The issue is not whether automating is cost effective; but only how to make it as cost effective as possible. (69:19)

The lack of consistent evidence forces people to weigh the advantages and disadvantages of CBI against what their instructional needs are. Perhaps it will not work in some areas, but each case needs to be examined on its own merits. In the DOD, CBI is being touted as a "significant instructional device for the Armed Services," based on research studies that report increased subject mastery, along with reduced training time and instructional costs (64:1-2).

These reported advantages convinced the Army to institute the Job Skills Education Program (JSEP), a computer-based educational program that assists soldiers

who are deficient in the basic skills necessary for their jobs (21:2; 64:1). Findings from the "extended tryout" reported that the soldiers adapted quickly and well to the CBI environment (21:2). A study by the Army Training Development Institute on HAWK missile maintenance found computer-based training reduced the amount of time needed to complete tasks, in addition to improving the quality of maintenance performed (52:3).

In 1988, the ARI sponsored hands on training research and found 95 percent of training costs were attributable to course length (69:v). Technical instruction only encompassed 14 percent of the costs; reducing training time, therefore, would reduce training costs (69:v). In 1988 dollars, each day saved due to improved technology would equate to \$425,000 (67:9). And the report stated

Training time savings could further reduce military expenditures by allowing more students to complete a course without the military's having to hire additional instructors. (64:5)

A common application of computer-based training in the Navy is in maintenance training, because of the expense involved in training on actual hardware (65:10). In addition, they found along with less wear and tear on actual equipment, schools were able to speed up the training process (65:10). An example is the weapon system maintenance aid, the Navy On-Board Maintenance Aid Device (NOMAD). The Navy found the NOMAD computer-based training aid decreased repair times. Fault isolation times

decreased from 1 hour to 17 minutes while mean-time-to-repair was reduced from 6 hours to 3 hours (52:3).

In the Air Force, CBI is currently being tested by the Military Airlift Command (MAC) in their aerial ports, both for on-the-job and mobility training (35). In addition, Air Training Command's vehicle maintenance course instructors at Chanute AFB, Illinois, report better retention of knowledge for students and times savings for instructors (29). Still, overall costs savings appear to be inconsistent. Air Training Command Regulation 52-10 states:

Savings from the use of CBI are varied, depending on the purpose for implementing the curriculum into CBI. Where conventional standup instruction is converted to CBI, the result may be that students complete training in less time, thereby creating a savings in student man-years. This savings can then be reinvested into other training which may or may not be computer-based. Use of CBI in applications where equipment procurement and maintenance costs are high has the potential for reducing the amount of equipment required and lowering associated maintenance cost. (14:1)

The success of its use in the technical schools was the catalyst behind the Air Force's Enlisted Transportation Advisory Group (ETAG) supporting expansion of computer-based training into unit level training, specifically into the vehicle operations environment and as a supplement to hazardous material training (15:11,18). Both of these areas are prime targets of concern for quality of training in support of mobility.

CBI Development

The primary question when looking at developing CBI is where and how can CBI be used to meet training objectives? Is CBI going to teach or supplement current instructional systems? Are students going to learn basic concepts or interrelationships between variables? The answer to these questions will determine whether CBI development requires using an authoring program or programming language.

Authoring

An authoring program is a system utilizing specialized computer languages that allows a person with no knowledge of computer programming to develop computer courseware (53:44; 58:37; 76:47). In many cases, an authoring program, when loaded into the computer, tells the user step by step what to do, providing templates in which lesson content can be presented in English versus computer programming symbols (23:25; 48:515; 76:47). It essentially eliminates the need to know how to program.

Many authoring programs offer the capability to design lessons with sound, graphics, and animation; others permit the user to design the responses that the computer gives to correct/incorrect answers; and others have built in test formats and record keeping programs (76:47). Different authoring systems offer various features that need to be looked at in light of the requirements of the

user. Perhaps screen formatting is needed, but not automatic formatting. Is animation necessary but not sound beyond beeps for incorrect answers? What type of CBI is wanted? Authoring programs are useful only for developing tutorials and drill and practice CBI; a knowledge of programming is needed for other modes of delivery (38:11). The different options available should be considered in the light of present and future user requirements, balancing wants, needs, and costs.

Programming

Knowledge of programming is a must if the instructional need is for teaching the application of skills and interdependence of variable factors. For these cases, specialized computer programming languages called authoring languages (versus authoring programs), were designed for the development of CBI. However, up to 50 percent of the time required to complete the programming will be needed for debugging (correcting programming errors) (38:11). Features to enhance programming specifically for CBI are included in the authoring language design (9:92).

These languages are not easy to learn, since along with programming skills, the developer must have a grasp of the special vocabularies required for that system (9:25). Learning a programming language in order to develop CBI is therefore impractical for an instructor

without a computing background (58:37). A knowledge of programming will be required, though, for developing gaming and simulation modules.

Modes of Delivery

CBI can be broken down into four modes of delivery: drill and practice, tutorials, gaming, and simulation (43:25; 50:14).

Drill and Practice. In drill and practice, the computer acts as a teacher instructing with routine drill exercises. For example, a question is displayed on the screen and the student is asked to pick the correct answer (22:35). A correct answer prompts another question while an incorrect answer results in further instruction (22:35).

Drill and practice is the prime method for the acquisition of skills dealing in basic concepts: rote learning in the case of drill, and patterned learning in the case of practice (7:148). It is the primary way for knowledge memorization, and its value relates to the regard in which memorization skills are held (7:148; 51:74). Drill and practice programs are intended to supplement classroom instruction, designed to sharpen skills by allowing students to review basic concepts, vocabulary, problems, and definitions (33:143; 42:47; 43:27; 50:15).

Good programs incorporate branching, which allows students to skip over material they know and concentrate on their weak areas (50:15). In addition, good programs provide reinforcement and encouraging feedback (50:15).

Tutorials. Tutorials assume the place of the teacher by presenting modules of material comprised of different sections organized on a sequential basis (3:8; 50:15). At the successful completion of each section, the student is asked questions on the material covered (22:35; 50:15). The program should result in the student remediating the section if an expected level of success is not attained (22:35; 50:15). Tutorials present rules and concepts of the learning material, evaluates comprehension, and uses branching to provide practice in specific areas (43:27). Tutorial goals are knowledge acquisition and comprehension (43:27).

Gaming. Gaming allows students to use previously acquired skills while learning interrelationships among facts (43:27; 50:15). Gaming is considered a highly motivational format, requiring the student to develop and master specific skills and concepts in order to win (43:27; 50:15). Gaming has as its goal teaching the application of principles (43:27).

Simulations. Simulations take gaming a step further by their capacity to teach about problem solving (43:27). This helps students learn such diverse concepts as running

a manufacturing plant or refueling an aircraft. Simulations are a model of a real problem and cause students to interact with the simulated reality (43:27). Therefore, students are able to learn to analyze problems and apply these answers to real world situations (43:27)

Software Selection

Instructors are not trained to be computer programmers. In addition, the thrust of Air Force training at the unit level is usually to teach and reinforce concepts that do not call for a student to interact with a simulated reality. Therefore, authoring programs answer the nonprogrammer's need to build CBI for use at the unit level.

The question now is which authoring program is best, taking into consideration the cost, compatibility with existent hardware, facility of use for the courseware designer, the lesson features, and the system or language advantages and disadvantages. Table 1 is a directory of authoring languages and systems available in the Air Force within the training community. This table shows the names of the programs, identifies them as authoring systems or authoring languages, ascertains the options available, and establishes what the current costs are. Table 2 groups the authoring languages and systems according to their advantages and disadvantages.

TABLE 1
AUTHORING SOFTWARE

<u>NAME</u>	<u>USER</u>	<u>OPTIONS</u>	<u>COST</u>
SABER (Lang)	Commercial pkg site licensed by ATC to develop ATC courses for DOD.	Branching, color, animation, front- end editor, graphics, and executes sound.	\$10,000 for site licensing
PLATO (Lang)	Commercial pkg site licensed, Chanute AFB.	Branching, color, sound, line graphics, and line editor.	\$220 per month per terminal, plus comm costs.
TENCORE (Lang)	Commercial pkg site licensed, Shepherd AFB.	Branching, color, sound, line and full screen editor, graphics and graphics editor, CD ROM, and IVD.	\$200 per month per terminal.
MERLIN (Lang)	Designed at Keesler AFB Contact: 3302 TCHTS/CSSAC Keesler AFB MI 39534-5000	Branching, color, front end editor, graphics, and executes sound.	Free to any Air Force activity.
MAGIC (System)	Due out in 90/91 Contact: 3302 TCHTS/CSSAC Kessler AFB MI 39534-5000	Menu driven with top level menu, (i.e., CREATE PAGE, PRINT TEXT), color, graphics.	Free to any Air Force activity.
TUTOR.COM (System)	Site licensed by AFIT.	Limited branching, color, line graphics.	\$500 for site licensing

Table 1. SABER, TENCORE, AND PLATO are all commercial packages utilizing an authoring language, which requires programming expertise. SABER is currently site licensed by Air Training Command (ATC), whose personnel are developing exportable ATC courses for the DOD (5). The cost for licensing SABER was approximately \$10,000 (5). Chanute AFB licenses PLATO, which is used in their vehicle maintenance technical school. It is a mainframe system hooked up by telephone lines to the University of Illinois. Costs are \$220 per month per terminal for the subscription, plus the monthly communication costs for being hooked up to a network (communication costs for Chanute are presently \$100 per month per terminal) (12).

TENCORE, a language similar to the one used by PLATO, is PC-based instead of mainframe based. TENCORE is a commercial package presently site licensed by Shepherd AFB. Costs are \$200 per terminal per month (5). MERLIN was designed by Air Training Command as a language that could be used by all Air Force activities. MERLIN uses commands in English, so ATC considers the learning curve to be considerably shorter than learning other programming languages; they state learning MERLIN should take only a few weeks (56). MERLIN is free to any Air Force activity (56). In addition, ATC is developing an authoring system called MAGIC, which will be menu driven (56). This will answer the needs of those activities that want CBI, but

whose personnel are not programmers. MAGIC should be available by 1991, and will be free to any Air Force activity (56).

TUTOR.COM, an authoring system, is site licensed at the Air Force Institute of Technology (AFIT). TUTOR.COM uses a simple language with minor coding for quick generation of tutorials. Cost was \$500 for site licensing with unlimited distribution.

Table 2. Between the four authoring languages, MERLIN has the advantage of cost, as it is government owned, developed, and maintained. It also is PC-based, but the 3.0 version requires 512K random access memory (RAM) while the soon to be released 3.2 version will need 640K RAM (56). MERLIN's major drawback, that animation cannot be easily developed, is overcome by its ability to run imported animation (56).

MAGIC, an authoring system, is being developed for nonprogrammers. It will be menu driven with a top level menu. Therefore, the person using the program will only need to run one program. Users will operate a mouse to designate options on the menu, such as PRINT TEXT and CREATE PAGE, and the commands will execute (56).

TUTOR.COM is an authoring system presently used at AFIT. It employs simple language such as BUILDTUT and MAKETUT, and requires only minor ASCII coding at the start and finish of each tutorial screen. The major

TABLE 2
AUTHORING SYSTEMS/LANGUAGES
ADVANTAGES AND DISADVANTAGES

<u>NAME</u>	<u>ADVANTAGES</u>	<u>DISADVANTAGES</u>
SABER	Can import graphics, execute sound, video disc compatible.	High cost system. Needs programming expertise.
PLATO	Site licensing includes maintenance, rights to access, and all updates. Commands in English.	Networking system cannot easily import graphics using voice grade phoneline or handle animation.
TENCORE	PC-based system. Can import graphics. Uses commands in English.	Poor random number generator for test question selection.
MERLIN	Can import graphics. Govt owned, developed, maintained. Uses English as commands.	Animation not easily developed.
MAGIC	Menu driven system for non programmers. Will use English as commands. Govt owned, developed, maintained.	Not out until late 1990 or early 1991.
TUTOR.COM	Simple language with minor coding. Tutorials can be generated quickly.	Limited branching, no test record-keeping. Cannot import graphics.

disadvantage of TUTOR.COM is the inability to branch, based on the student's skill level, to other portions of a tutorial. It does have the ability to branch to another page to remediate material if a question results in several incorrect responses. TUTOR.COM's major advantage is cost: \$500 for site licensing with the added advantage of unlimited distribution. Therefore, until MAGIC is released, TUTOR.COM is presently the lowest cost CBI tutorial building tool available.

Conclusion

Saylor and Waychoff, in their presentation before the Twenty-third Annual Symposium of the Society of Logistics Engineers sum up the prevailing thought on CBI in the military:

Future labor markets with shortages of young people, who will have a general lack of education and skills, will influence logistics and training. Logisticians and trainers must consider using technology as an alternative to meet requirements of the future. (62:446)

Training aiding devices can facilitate training. Intelligent applications of these emerging technologies will allow us to better operate in a hostile environment and reduce mobility requirements.

The traditional classroom will not be totally replaced by emerging technologies. As one method of training is not the best for all applications, logisticians and trainers must analyze all alternatives to determine what is best in light of the future environment. The emphasis on the emerging technologies is on potential. (62:452)

Summary

Chapter II reported current views within the educational, training, and logistical environments regarding CBI. CBI development was the next area addressed. The difference between authoring languages and authoring programs was clarified, and the CBI modes of delivery were defined. Finally, authoring software considerations were identified and directories were displayed of authoring languages and systems available within the Air Force training community and their advantages/disadvantages.

Chapter III illustrates the methods employed to develop and test a computer-based instructional module designed around the air passenger terminal. The CBI development process based on Morrison and Ross' Four-State Model for planning CBI was the next area addressed. The CBI authoring program used to develop the software was covered, along with the lesson materials which formed a basis for the CBI program and experiment. Finally, the chapter outlines the experimental design and related hypotheses.

III. Methodology

Introduction

Mobility training is inefficient, due to the lack of alternatives to classroom training (16:2). Computer-based instruction (CBI) is an alternative training approach that some trainers feel could ease the classroom workload by supplementing unit level training (15:18).

Schlechter reports a lack of empirical evidence to support the notion that CBI is superior to other methods (64:37). He theorized, though, that CBI might best be used as a supplement to, versus replacement of instructor-led instruction (64:36). In a study of the lecture method versus CBI, Danley found there was no difference in posttest scores. The reported mean for the CBI group was 101.73 versus a mean of 101.85 for the lectured group (8:254). On the other hand, Wehr states that CBI could replace the instructor for teaching simple tasks (74:18).

What is best for teaching transportation mobility? This study was proposed to answer that question.

Assumptions

Development of a CBI was based on several assumptions. The first assumption was that the sample population used for this experiment was indicative of the Wright-Patterson AFB mobility population. The second

assumption was that Wright-Patterson was representative of the Air Force. These assumptions were based on Wright-Patterson's mission as a major aerial port of embarkation during wartime.

CBI Development

Morrison and Ross' Four-Stage Model for planning CBI was the starting point for development of a training module for transportation mobility. This model is applicable for any level of CBI: it prompts the designer for lesson options, provides a view of the structure, and identifies various modules to simplify authoring (49:6). The four stages, or steps of the planning process are outlined in Figure 1. First is the initial flowchart which uses simple geometric figures to designate the general flow of the overall lesson program. Storyboards or screen designs come next. During this step, placement of text, options used, responses, and any other instructions necessary for development of the program are identified. A detailed flow chart is then developed, using the storyboards as the guiding factor. Finally, the design is evaluated, coded, and then tested.

Initial Flowchart. Simplicity is the key in designing the initial flow. The objective is to comprehend the components that comprise the lesson. Components include the number of lessons developed, number

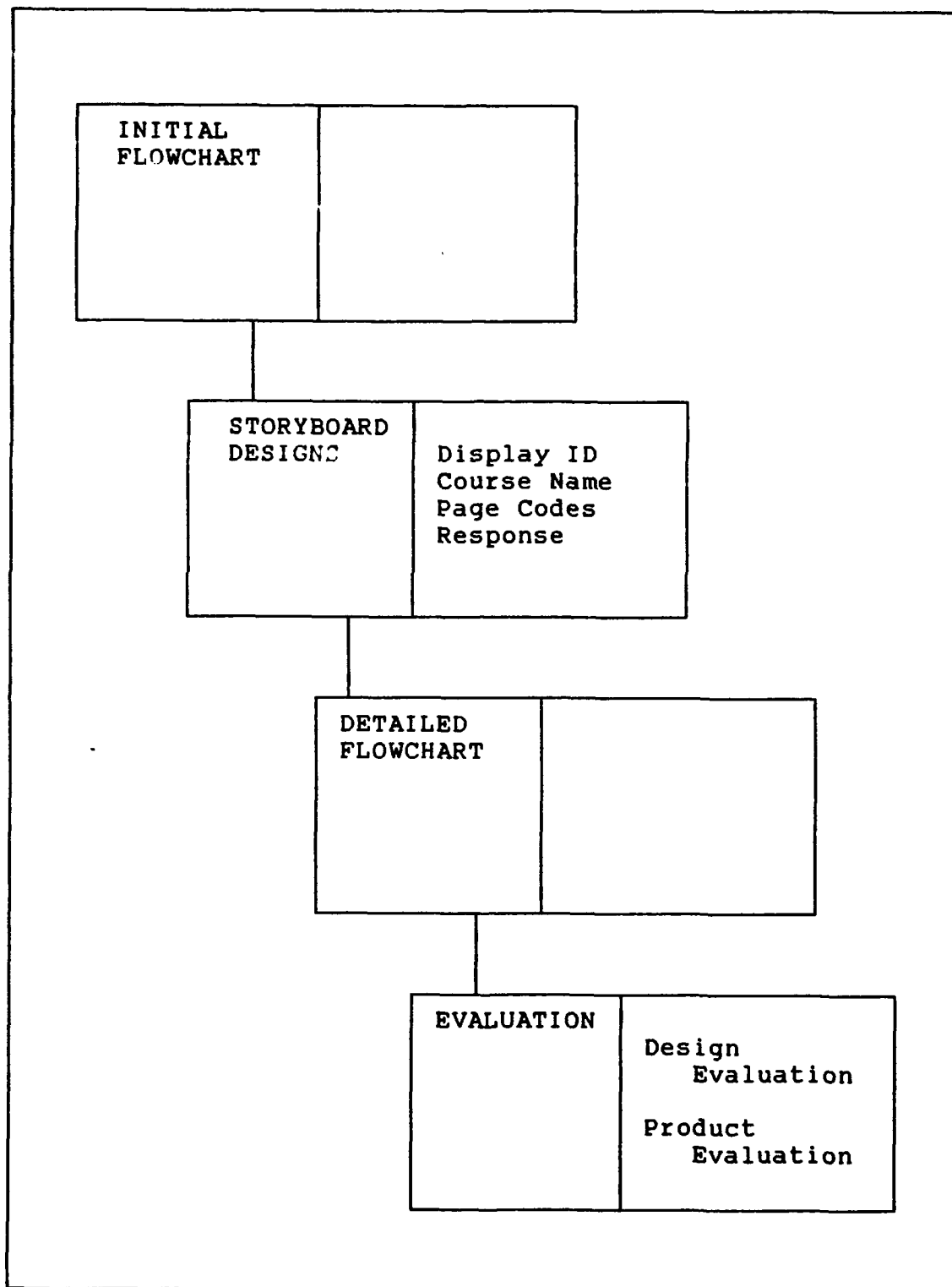


Figure 1. CBI Design Model (49:7)

of tests available, and whether the student has a choice to take a posttest or not.

An initial flowchart serves three purposes: it identifies the major parts of the CBI package, lets the designer view planned transitions between individual segments, and identifies the major components that will be used in division, scheduling, and budgeting of labor (49:8).

Figure 2 is the initial flowchart that identified the major components for this experiment. The starting point for the flowchart is the box labeled MENU. At this point, the student select a lesson to learn. For this experiment, there was only one choice, LESSON 1 (Air Passenger Terminal). The two boxes marked reserve are available for future lessons. Once the lesson begins, the student can choose any of five subareas to review by using the SUBMENU. At the end of the MANIFESTING subarea, the student is prompted to ask for a posttest. At this point, review of preceding material can continue by going back to the SUBMENU, or the student can choose to take the test.

Storyboards. A storyboard is a visual picture of what comprises individual frames of the CBI. On these frames the designer will present the text that will be shown on the computer screen, as well as annotating the options used. These options include foreground and background color, user responses to questions, and any special coding the frame

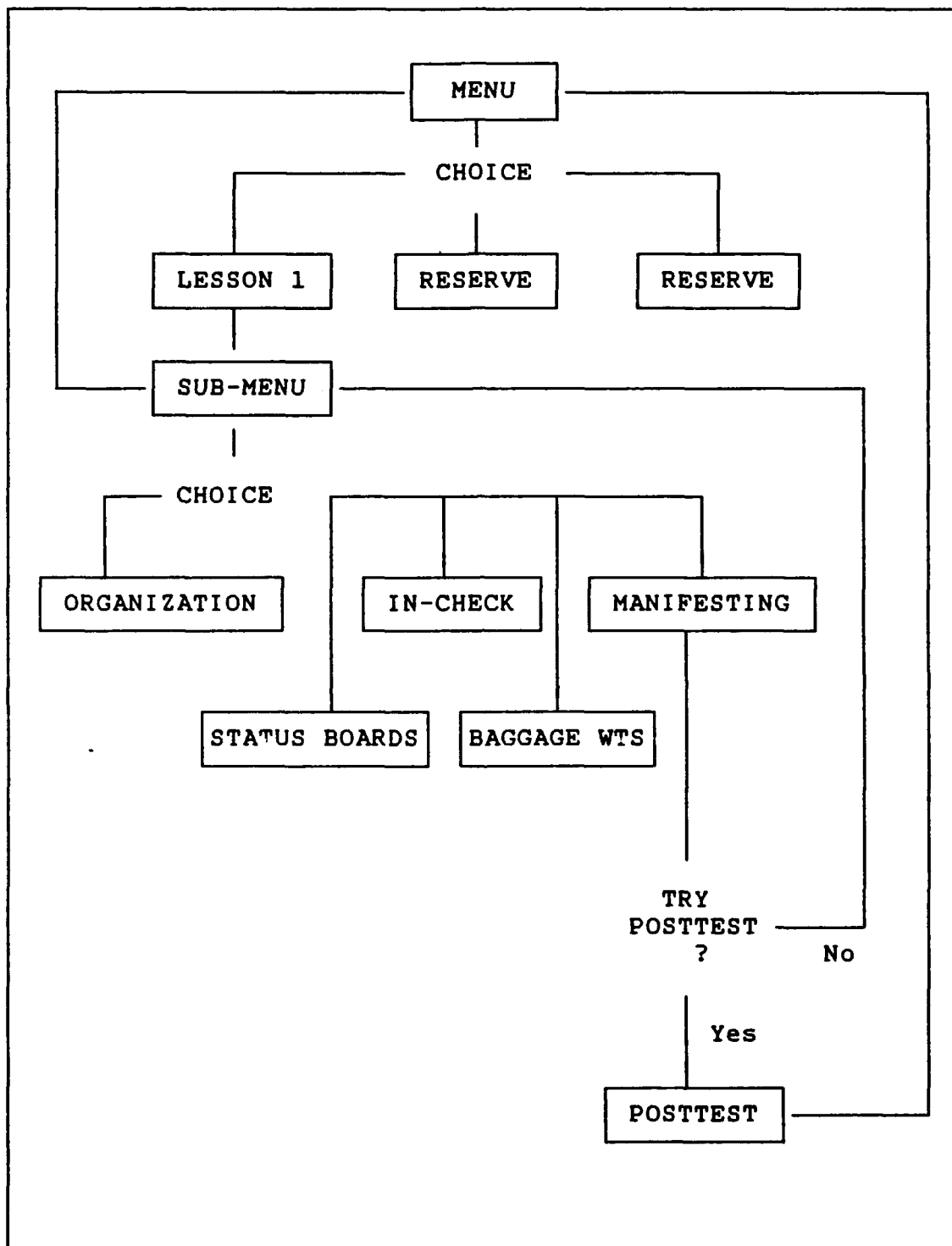


Figure 2. Initial Flowchart

needs to be workable within the program. The storyboard should enable a person to finish the program if the primary designer cannot. Figure 3 shows the type of storyboard used for this design. A compilation of all the storyboards used in developing this experiment are found in Appendix A.

DISPLAY ID:	COURSE:	OBJECTIVE #:
SUBJECT:		SEQUENCE #:
<div style="border: 1px solid black; height: 150px; width: 100%;"></div>		
SPECIAL INSTRUCTIONS		
PAGE CODE:	COLOR:	
OTHER:		

Figure 3. Storyboard (38:27; 49:9)

The first component on the storyboard, DISPLAY ID, identifies the lesson subarea covered by that section of the

lesson. OBJECTIVE # designates the numbered objective being met by the information on the frame. This number also corresponds to the format of the lesson plan. The Air Force Logistics Command lesson number designator was inserted after COURSE. The second line contains the overall course name. SEQUENCE # consists of the OBJECTIVE # plus an additional number to make it easier to identify frames for revision and debugging.

The rectangle symbolizes the computer screen. The text that would appear on the screen was placed within this area. Following the text was the ASCII code that would operate the program.

Below the screen symbol are the SPECIAL INSTRUCTIONS. The authoring program required color codes at the beginning of each screen. Color codes set the background and foreground colors for that screen. That code was stated at PAGE CODE, with resulting color inserted in the COLOR block. Anything else was put into the OTHER section (i.e., if any words were highlighted and why highlighting was used).

Detailed Flowchart. Detailed flowcharts were designed using the specified information from the storyboards. These flowcharts are Figures 4 through 8. Each rectangle corresponds to a separate frame and is labeled with the

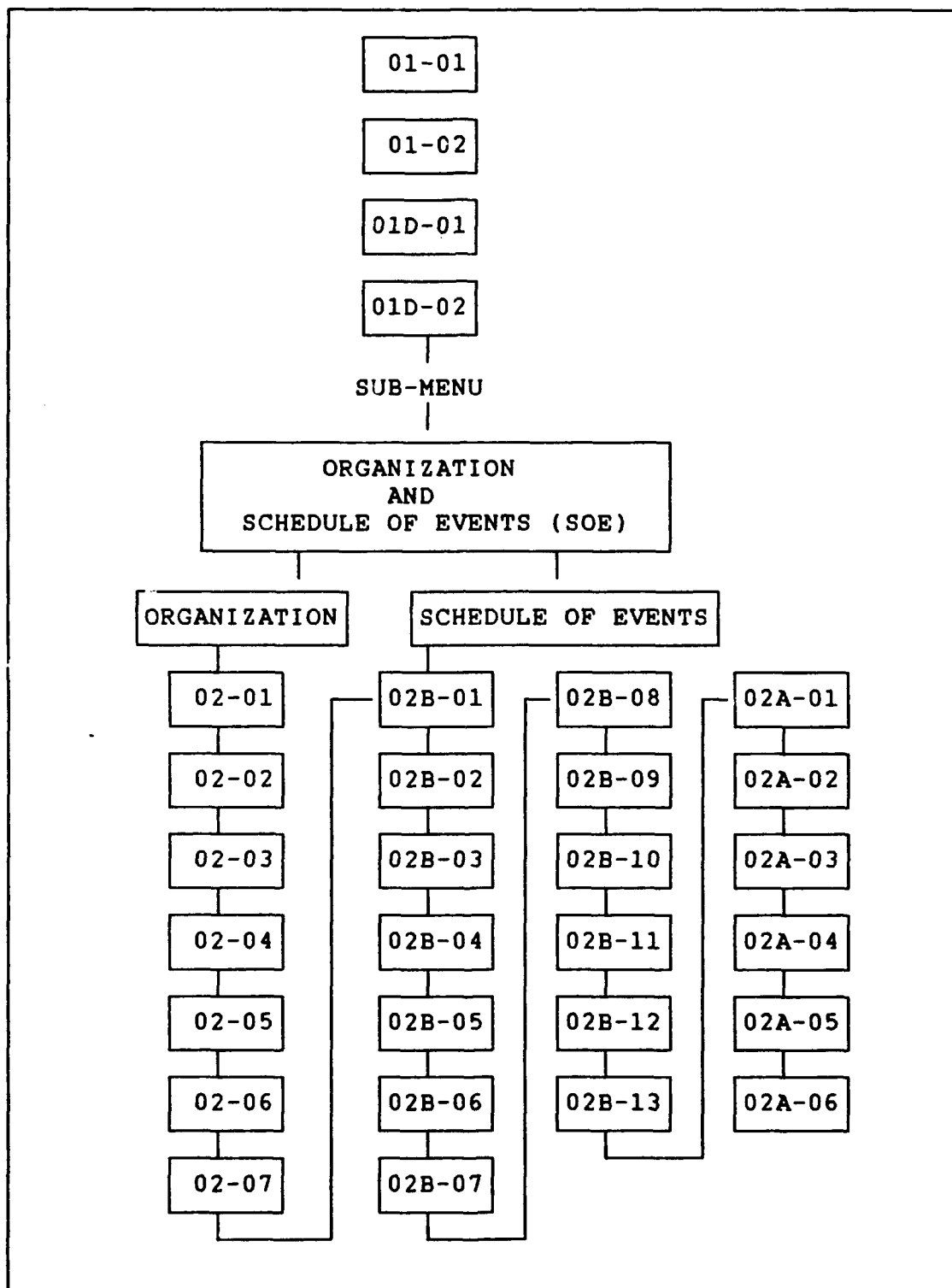


Figure 4. Detailed Flowchart Organization and SOE

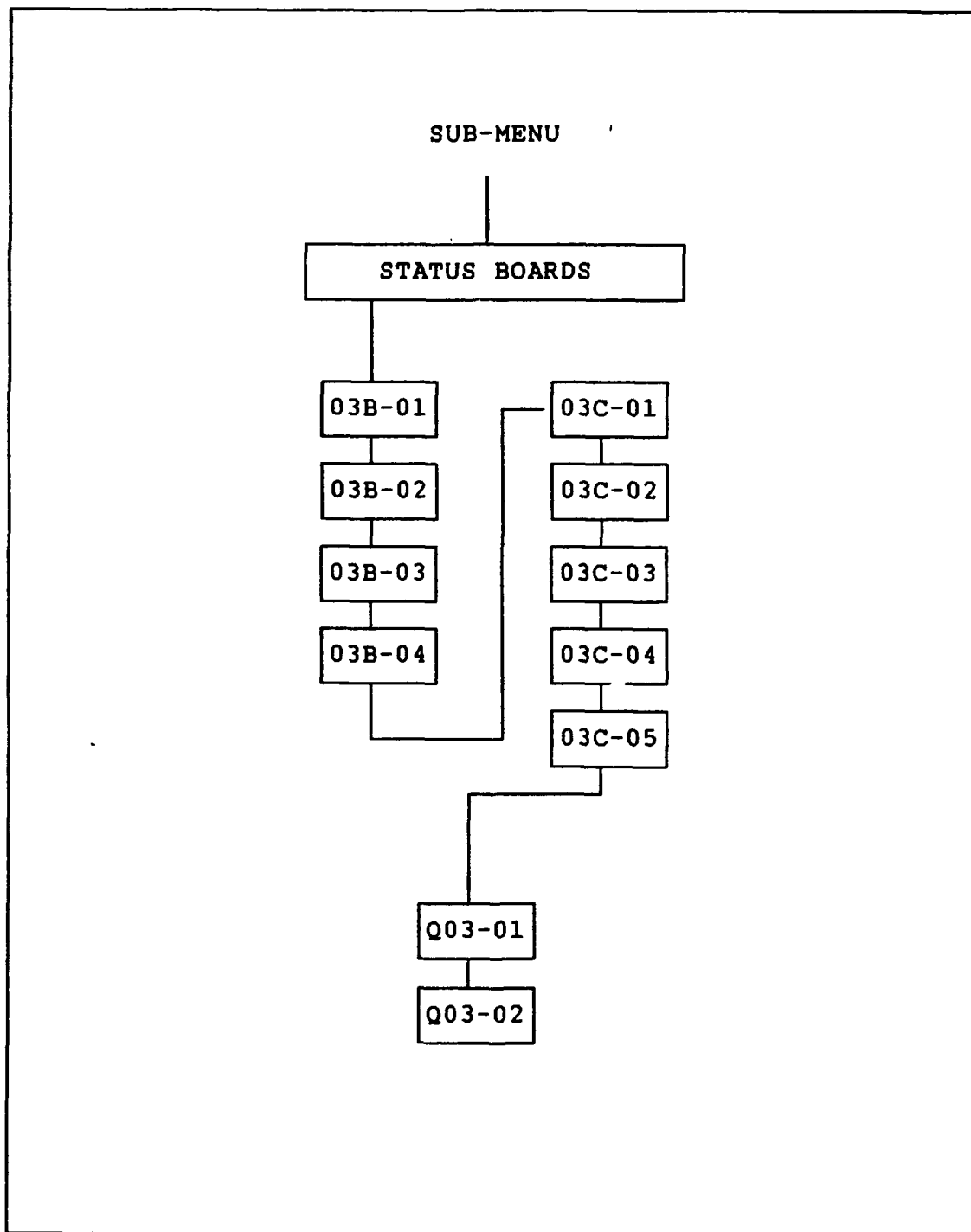


Figure 5. Detailed Flowchart of Status Boards

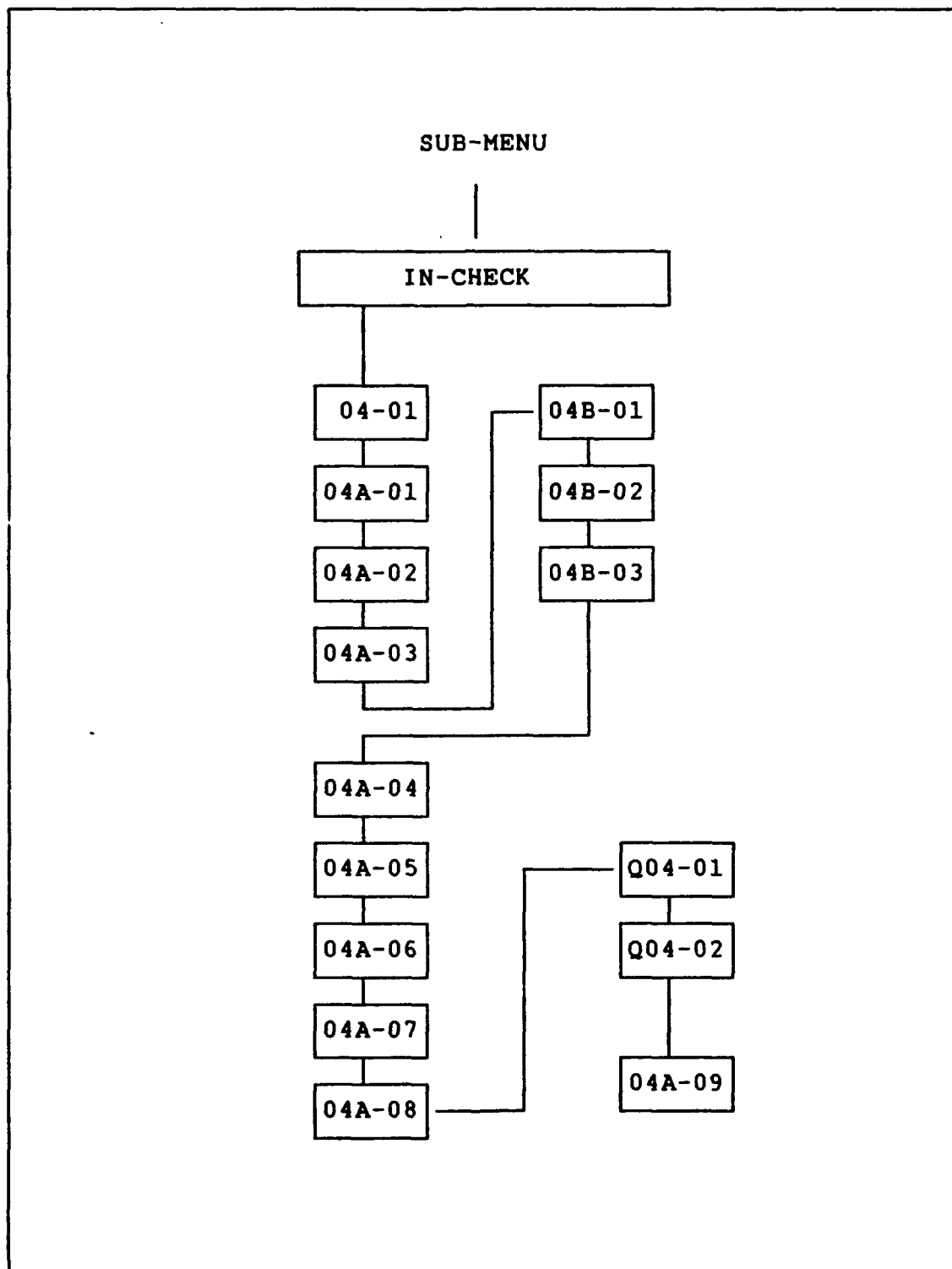


Figure 6. Detailed Flowchart of In-Check

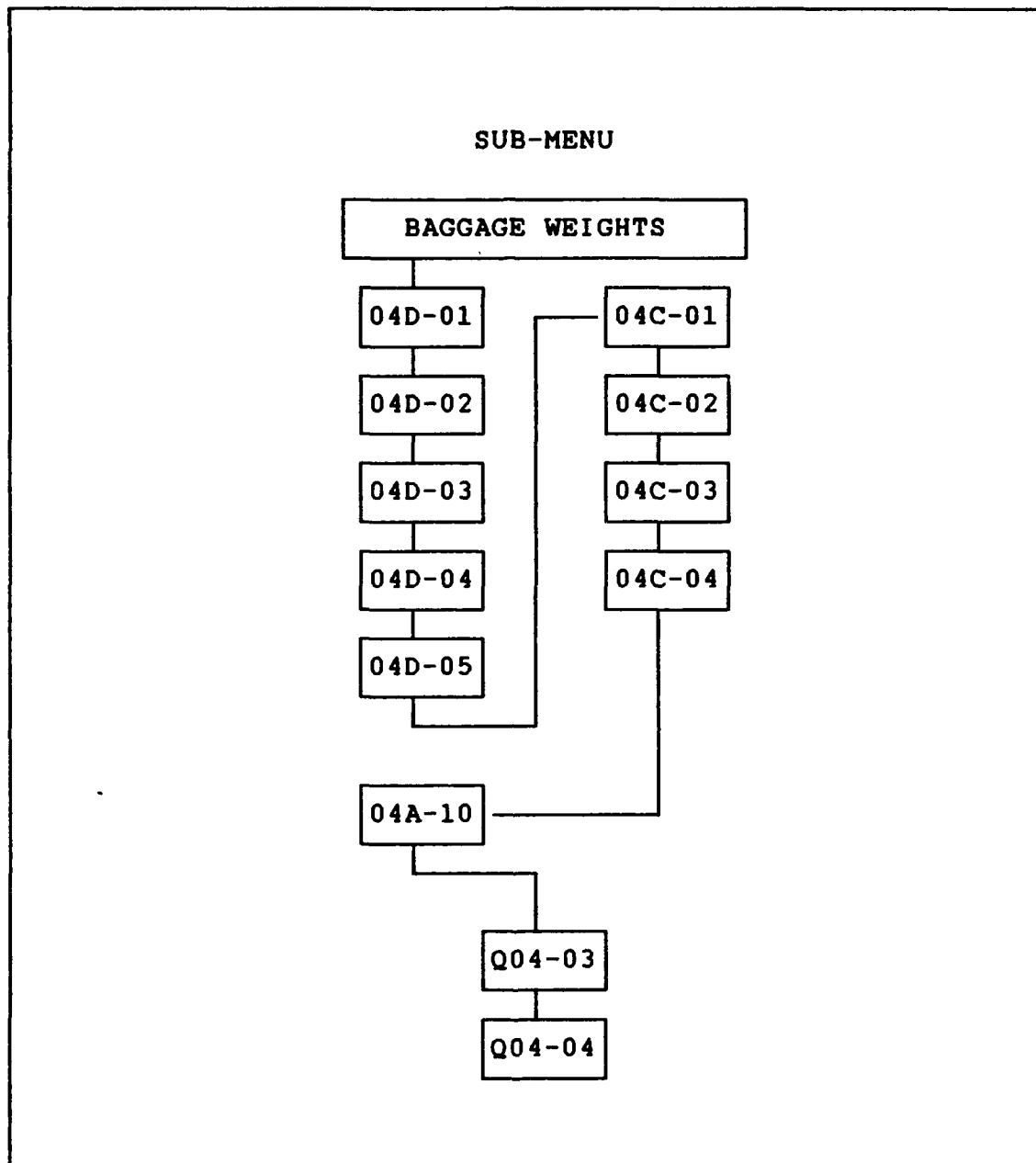


Figure 7. Detailed Flowchart of Baggage

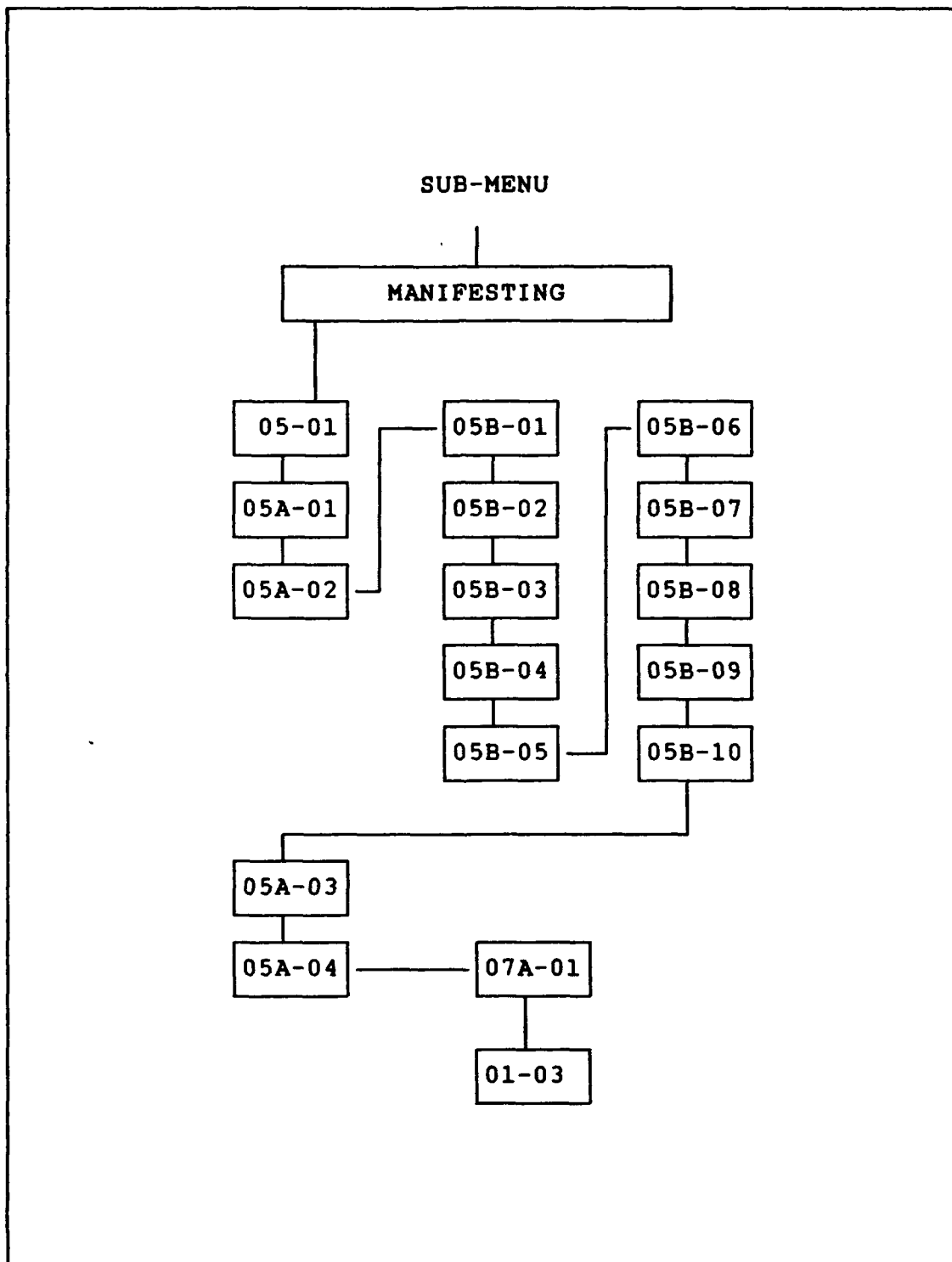


Figure 8. Detailed Flowchart of Manifesting

SEQUENCE # and OBJECTIVE # (49:11). Questions in the program were labeled with a 'Q' plus the SEQUENCE #. Flowcharts were used to evaluate the program. At this point, weaknesses in the program were identified, and corrections made. Additional frames could have been added or deleted at this time. Once the program was coded, the storyboards also acted as a check to see if the CBI module followed the specifications stated.

CBI Authoring

TUTOR.COM, an authoring courseware, was used to develop the CBI. In choosing the software to use, the main considerations were cost, availability, ease of use, and time. As discussed in the literature review, TUTOR.COM is presently site licensed at the Air Force Institute of Technology (AFIT), and was therefore readily available in addition to posing no additional monetary costs. The problems with using TUTOR.COM were twofold. First, only line graphics could be used in designing the CBI. Freehand drawing of graphics was difficult, as only vertical and horizontal lines could be utilized with TUTOR.COM. In addition, the program could not import graphics. Therefore, the visual aspects of the program were restricted. Secondly, the program incorporated limited branching. Branching would have allowed students to skip to preselected sections based on their answers to questions presented after each subsection of a lesson. The program

only allowed the computer to present the previous text for review upon the student exhausting all the erroneous responses to a question. At first, this might not appear to be a problem in designing a tutorial aimed at the initial training level. However, limited branching would hinder building a tutorial incorporating several different knowledge and skill levels. The program for a multi-skill tutorial would branch to areas of increasing difficulty as easier levels are mastered.

Lesson Materials

An abbreviated version of the Wright-Patterson Air Force Base (AFB) Air Passenger Terminal (APT) lesson plan was used as the basis for the CBI. The portions removed were the Passenger Load/Hold objectives and the requirement for actual mobility exercise on-the-job training. Appendices comprising the lesson plan, accompanying student workbook, and end-of-course examination were developed from ones presently in use at Wright-Patterson AFB. These can be found in Appendices B, C, D, and H. Lesson materials, based on AFR 28-4, were developed by the transportation mobility trainers from Wright-Patterson and all five air logistics centers (ALCs) within Air Force Logistics Command (AFLC). They were subsequently approved by the Headquarters AFLC Transportation Plans and Programs Office in May 1990 for use throughout AFLC.

Wright-Patterson AFB becomes a major aerial port of embarkation (APOE) during wartime. Upon alert notification, the transportation mobility areas gear up to process passengers and cargo in support of contingencies or theater operations. In addition, they store, process, and move various major aircraft items to support wartime resupply activities. All mobility actions are governed by AFR 28-4. Therefore, this CBI should have wide applicability within the Air Force.

Design

In this study, a group of students taught by the traditional lecture method was compared to a similar group instructed by CBI. In setting up the experiment, a quasi experimental nonequivalent control group design was used. This decision was based on an inability to establish equivalent control and test groups through random assignment (24:126).

Test subjects were selected from a pool of APT and Transportation Resources Control Center (TRCC) mobility augmentees. Total mobility augmentees number 76, but those not requested were assigned to areas such as the Air Cargo Terminal (ACT). The majority of the ACT augmentees work at the Air Freight Terminal when not performing mobility functions. Their inclusion would have hindered the mission of the Air Freight Terminal who depend on these people to operate the terminal.

Letters were sent to 48 people requesting their presence for training; 39 reported for the experiment, including 3 Exercise Evaluation Team (EET) members. The sample population was therefore determined by the number of augmentees available (24:278). Separate numbered sign-in sheets were used for APT and non-APT personnel. Both sheets had even and odd numbers. After signing in, all those who had signed along side of even numbers were designated the Control Group and odd numbers were designated the Test Group.

The design is diagrammed as follows, where 0 equals the control and X is the treatment (CBI is the treatment for the first group and lecture method for the second):

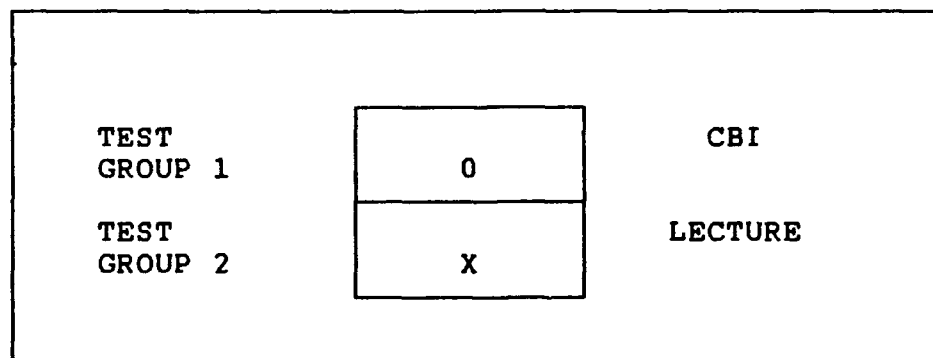


Figure 9. Design Diagram

Both groups were welcomed as participants in an experiment (Appendix E) and administered a pretest to determine knowledge levels (Appendix D). The Test Group was transported to the Air Force Institute of Technology computer classrooms to receive instruction using the CBI

package. The Test Group was divided into two groups of ten, one group of ten per each computer classroom. During the experiment, one of the computers broke down, so that person was taken to another computer lab to complete his CBI. The Control Group stayed in a classroom at the mobility training building, and received instruction by classroom lecture. Following the instruction, both groups were retested to measure comprehension levels.

The test consisted of 28 multiple choice questions, each containing the correct answer plus three distractors. None of the items from this test were included in the CBI practice quizzes in order to lessen the chance that the CBI group might recall test items. The test was developed by transportation mobility experts from each of the installations throughout AFLC. Subsequent approval of the test by Headquarters AFLC's Transportation Plans and Programs, the office of primary responsibility for transportation mobility training within AFLC, ensured content validity.

Pretest/Posttest results of the test and control groups were separately compiled and compared using SAS System and STATISTIX software. Descriptive statistics were used to calculate the mean and standard deviation of the scores.

The Wilk-Shapiro test was used to determine whether the test results data were from a normal population. The

rejection region was $W < W_{.05}$, with alpha equals .05 as the level of significance. The assumption was made that the sample was a random sample.

HYPOTHESES:

H_0 : Test Group Samples are from a normal population. H_0 : Control Group samples are from a normal population.

H_a : Test Group is nonnormal. H_a : Control Group is nonnormal.

Next, three pooled-variance t-tests were performed. The first one compared pretest results of the test group ($n = 20$) with pretest results of the control group ($n = 19$).

HYPOTHESIS:

H_0 : Test Group pretest scores are equivalent to the Control Group pretest scores.

H_a : Test Group pretest scores are not equivalent to the Control Group pretest scores.

The test statistic was a two-tailed t-test, with a rejection region of $t < -t_{.025}$ or $t > t_{.025}$ (alpha equals .05), where t is based on 37 degrees of freedom ($n_1 + n_2 - 2$ df).

The second test compared posttest scores of the test group with posttest scores of the control group. The outcome determined whether statistically there was a difference between the treatments (CBI versus instructor-led).

HYPOTHESIS:

H_0 : Test Group posttest scores are equivalent to the Control Group posttest scores.

H_a : Test Group posttest scores are not equivalent to the Control Group posttest scores.

Data sample size, test statistic, and rejection region for this test was the same as for the previous test (pretests).

The third t-test compared test group pretest scores with test group posttest scores and control group pretest scores with control group posttest scores. Results would demonstrate whether the treatments affected the outcome of either group. Data sample size again was $n = 20$ and $n = 19$.

HYPOTHESIS:

H_0 : There is no difference between the Test Group's pretest and posttest.

H_0 : There is no difference between the Control Group's pretest and posttest.

H_a : Mean test scores differ. H_a : Mean test scores differ.

The t-test was two-tailed with a rejection region of $t < -t.025$ or $t > t.025$, where t is based on 38 degrees of freedom for the test group and 36 degrees of freedom for the control group ($n_1 + n_2 - 2$ df).

The test and control groups were each subdivided into two groups, APT and non-APT. Four additional t-tests were performed.

The first test compared pretest results of the test group's non-APT subgroup with the pretest results of the APT subgroup. The second t-test compared pretest results of the control group's non-APT subgroup versus the pretest results of its APT subgroup. Results were tabulated to establish whether equivalency of the two subgroups could be determined.

Data sample size for the test group non-APT subgroup was $n = 11$ and sample size for the APT subgroup was $n = 9$.

HYPOTHESIS:

H_0 : Mean test scores equal each other.

H_a : Mean test scores are not equal.

The t-test was two-tailed with a rejection region of $t < -t_{.025}$ or $t > t_{.025}$, where t is based on 18 degrees of freedom ($n_1 + n_2 - 2$ df).

The second test was between the control group's subgroups. Sample size for the non-APT subgroup was $n = 11$ and sample size for the APT subgroup was $n = 8$.

HYPOTHESIS:

H_0 : Mean test scores are equal.

H_a : Mean test scores are not equal.

The t-test was two-tailed with a rejection region of $t < -t_{.025}$ or $t > t_{.025}$, where t is based on 17 degrees of freedom ($n_1 + n_2 - 2$ df).

The third t-test compared the posttest results of the test group's non-APT and APT subgroups, and the fourth

t-test compared the control groups posttest scores for its subgroups. Results demonstrated whether scores were a function of previous mobility experience in the APT.

Data sample size for the test group's non-APT and APT subgroups was $n = 11$ and $n = 9$.

HYPOTHESIS:

H_0 : Mean test scores are equal.

H_a : Mean test scores are not equal.

The t-test was a two-tailed test with a rejection region of $t < -t.025$ or $t > t.025$, where t is based on 18 degrees of freedom ($n_1 + n_2 - 2$ df).

The last t-test compared posttest scores for the subgroups within the control group. Data sample size for non-APT versus APT was $n = 11$ and $n = 8$.

HYPOTHESIS:

H_0 : Mean test scores are equal.

H_a : Mean test scores are not equal.

The t-test was two-tailed with a rejection region of $t < -t.025$ or $t > t.025$, where t is based on 17 degrees of freedom ($n_1 + n_2 - 2$ df).

Following the tests, an attitudinal survey was administered to all participants. The survey was based on a Likert-type five-point scale (where one equals strongly agree and five equals strongly disagree), and consisted of 16 statements about the CBI. To ensure internal validity,

similar statements were both negatively and positively worded. This survey can be found at Appendix F.

The results of similar statements were compiled and graphs developed. Data was then analyzed by comparing these graphs with simple correlations developed through STATISTIX software. In addition, contingency tables were set up to compare demographic information with survey results.

Conclusion

The methodology used for testing CBI versus instructor-led was covered in this chapter. Morrison and Ross' Four-Stage Model for planning CBI was addressed along with selection considerations underlying the authoring software chosen to develop this experiment's CBI. The lesson materials which formed the basis for the instructional package were derived from those already in use by the Wright-Patterson transportation mobility trainers.

The experiment was based on a quasi experimental nonequivalent control group design. Test subjects were selected from a pool of APT and TRCC mobility augmentees. Pretest and Posttest results of the test and control groups were compared using pooled-variance t-tests. An attitudinal survey based on a Likert-type five-point scale consisting of 16 statements about the CBI, was administered to all CBI participants following the posttest.

Demographic information concerning years of mobility and computer experience was also collected.

Chapter IV includes the analyses of the Wilk-Shapiro test for normality, the pooled-variance t-tests for the test group versus the control group, the t-tests establishing results of the differences of the subgroups within the test and control groups, the attitudinal survey results, and the analysis of the survey results versus specific demographic information.

IV. Analysis of Data

Introduction

The methodology for developing a computer-based instruction (CBI) package and testing it versus the instructor-led lecture was covered in Chapter III. Included were sections on CBI development, considerations underlying the choice of TUTOR.COM as the authoring program, and the lesson materials used as the basis for developing a CBI package. In addition, the experimental design was described along with applicable hypotheses for the analysis of the data.

In Chapter IV, the data from testing the CBI, along with responses from an attitudinal survey and demographic information, were compiled and analyzed. Prior to any analysis of data, the assumption of normality has to be tested. The outcome determines whether parametric or nonparametric testing of data will be performed. In this experiment, the Wilk-Shapiro test for normality was used to determine whether the test results data were from a normal population. Pooled-variance t-tests were performed to determine equivalence of test groups (pre-tests) and whether there was any statistical difference in teaching methods (posttests) and the outcomes of posttests based on treatments (pretests versus posttests).

Next, test and control groups were separated into two additional subgroups: those assigned to the Air Passenger Terminal (APT), and those not assigned to the APT. Further t-tests were performed to determine if these two subgroups were equivalent, and whether their membership in either group had a bearing on final test scores.

Finally, attitudes of participants towards computer-based instruction and respondent demographics were analyzed. These analyses were performed using the results of an attitudinal survey based on a five-point Likert scale, in which respondents selected one of five choices ranging between Strongly Agree and Strongly Disagree.

Wilk-Shapiro Test for Normality

The data consist of a random sample X_1, X_2, \dots, X_n of size $n = 20$ for the test group and $n = 19$ for the control group.

ASSUMPTIONS: The sample is a random sample.

HYPOTHESES:

H_0 : Test Group samples are from a normal population. H_0 : Control Group samples are from a normal population.

H_a : Test Group is nonnormal. H_a : Control Group is nonnormal.

TEST STATISTIC:

TS: $W = .9473$

$\alpha = .05$

TEST STATISTIC:

TS: $W = .9382$

$\alpha = .05$

REJECTION REGION:

$$W < .905$$

REJECTION REGION:

$$W < .901$$

CONCLUSION:

Insufficient evidence to reject the null hypotheses for both the test and control groups. Therefore, normality of the sample populations of both groups was assumed to be true for the purposes of this experiment.

Pooled-Variance T-Tests

Three t-tests were performed. The first one compared pretest results of the test group with the pretest results of the control group. These results established whether the two groups were equivalent and gave a basis upon which to compare posttest scores. The second compared posttest scores of the test group with posttest scores of the control group. The outcome determined whether there was a difference between the treatments. The third t-test compared test group pretest scores with test group posttest scores and control group pretest scores with control group posttest scores. Results demonstrated whether the treatments affected the outcome of either group.

Pretests T-Tests.

DATA: Sample size for the test group was $n = 20$ and sample size for the control group was $n = 19$.

MEANS:

$$\bar{x}_1 = 15.05; \bar{x}_2 = 17.2105$$

VARIANCES:

$$s_1^2 = 14.1553; s_2^2 = 20.1754; s_p^2 = 17.08$$

HYPOTHESIS:

H_0 : Test Group test scores are equivalent to the Control Group test scores.

H_a : Test Group test scores are not equivalent to the Control Group test scores.

TEST STATISTIC:

$$t = -1.6318$$

REJECTION REGION:

$t > 2.021$ or $t < -2.021$, where t is based on 37 degrees of freedom ($n_1 + n_2 - 2$ df)

CONCLUSION:

Insufficient evidence to reject the null hypothesis. Therefore, the assumption can be made with 95 percent confidence that the test and control groups are not statistically different at the $\alpha = .05$ level of significance.

Posttests T-Tests.

DATA: Sample size for the test group was $n = 20$ and sample size for the control group was $n = 19$.

MEANS:

$$\bar{x}_1 = 21.6; \bar{x}_2 = 23$$

VARIANCES:

$$s_1^2 = 13.5158; s_2^2 = 10.3333; s_p^2 = 11.97$$

HYPOTHESIS:

H_0 : Test Group test scores are equivalent to the Control Group test scores.

H_a : Test Group test scores are not equivalent to the Control Group test scores.

TEST STATISTIC:

$$t = -1.2635$$

REJECTION REGION:

$T > 2.021$ or $t < -2.021$, where t is based on 37 degrees of freedom ($n_1 + n_2 - 2$ df)

CONCLUSION:

Insufficient evidence to reject the null hypothesis. Therefore, the assumption can be made with 95 percent confidence that there is no difference between the two methods of training: computer-based and instructor-led. The test results are not statistically significant at the $\alpha = .05$ level.

Pretests versus Posttests.

DATA: Sample size for the test group was $n_{11} = 20$ (pretest) and $n_{12} = 20$ (posttest) and sample size for the control group was $n_{21} = 19$ (pretest) and $n_{22} = 19$ (posttest).

MEANS:	$\bar{x}_{11} = 15.01$	$\bar{x}_{21} = 17.2105$
	$\bar{x}_{12} = 21.6$	$\bar{x}_{22} = 23$

VARIANCES:

$$S_{11}^2 = 14.1553$$

$$S_{21}^2 = 20.1754$$

$$S_{12}^2 = 13.5158$$

$$S_{22}^2 = 10.3333$$

$$S_{p1}^2 = 13.84$$

$$S_{p2}^2 = 15.25$$

HYPOTHESES:

H_0 : There is no difference between the Test Group's pretest and posttest.

H_0 : There is no difference between the Control Group's pretest and posttest.

H_a : Mean test scores differ.

H_a : Mean test scores differ.

TEST STATISTIC:

$$t = -5.5677$$

TEST STATISTIC:

$$t = -4.5695$$

REJECTION REGION:

$t > 2.021$ or $t < -2.201$, where t is based on 38 degrees of freedom

$$(n_{11} + n_{12} - 2 \text{ df})$$

REJECTION REGION:

$t > 2.021$ or $t < -2.021$, where t is based on 36 degrees of freedom

$$(n_{21} + n_{22} - 2 \text{ df})$$

CONCLUSION:

T-test results are statistically different at the $\alpha = .05$ level of significance. Since the observed values of t , $t = -5.5677$ and $t = -4.5695$ fall into the rejection region, the samples provide sufficient evidence to indicate that the mean numbers of test scores differ for both pretests and posttest. Rejection was in the negative or lower tail of the t distribution, indicating that the mean scores for the posttests exceeds that of

the pretests. These results were not unexpected, and show that both treatments have a positive effect on posttest scores.

Non-APT versus APT T-Tests

Four t-tests were performed. The first one compared pretest results of the test group's non-APT subgroup with the pretest results of the APT subgroup (See Table 3). The second t-test compared pretest results of the control group's non-APT subgroup versus the pretest results of its APT subgroup. These results established whether the two subgroups were equivalent, and again gave a basis upon which to compare posttest scores.

TABLE 3
TEST AND CONTROL GROUPS' PRETEST AND POSTTEST RESULTS

MEAN SCORES	<u>TEST GP PRETEST</u>	<u>TEST GP POSTTEST</u>	<u>CONTROL GP PRETEST</u>	<u>CONTROL GP POSTTEST</u>
TOTAL	15.05	21.6	17.2105	23
NON-APT	14.18	22.09	15.55	21.64
APT	16.11	21	19.5	24.87

The third t-test compared the posttest results of the test group's non-APT and APT subgroups, and the fourth t-test compared the control group's posttest scores for its subgroups. Results of the last two tests demonstrated whether scores were a function of mobility function experience.

Test Group Pretest: Non-APT versus APT.

DATA: Sample size for the non-APT subgroup was $n = 11$ and sample size for the APT subgroup was $n = 9$.

MEANS: $\bar{x}_1 = 14.18$; $\bar{x}_2 = 16.11$

VARIANCES: $s_1^2 = 11.3636$; $s_2^2 = 17.1148$

HYPOTHESIS:

H_0 : Mean test scores are equal.

H_a : Mean test scores are not equal.

TEST STATISTIC:

$$t = -1.15$$

REJECTION REGION:

$t > 2.101$ or $t < -2.101$, where t is based on 18 degrees of freedom ($n_1 + n_2 - 2$ df)

CONCLUSION:

Insufficient evidence to reject the null hypothesis at the $\alpha = .05$ level of significance. The assumption can therefore be made with 95 percent confidence that mean test scores are not statistically different.

Control Group Pretest: Non-APT versus APT.

DATA: Sample size for the non-APT subgroup was $n = 11$ and sample size for the APT subgroup was $n = 8$.

MEANS: $\bar{x}_1 = 15.55$; $\bar{x}_2 = 19.50$

VARIANCES: $s_1^2 = 14.8764$; $s_2^2 = 20.2860$

HYPOTHESIS:

H_0 : Mean test scores are equal.

H_a : Mean test scores are not equal.

TEST STATISTIC:

$$t = -2.0555$$

REJECTION REGION:

$t > 2.110$ or $t < -2.110$, where t is based on 17 degrees of freedom ($n_1 + n_2 - 2$ df)

CONCLUSION:

Insufficient evidence to reject the null hypothesis. The assumption can be made with 95 percent confidence that the mean scores are not statistically different.

Test Group Posttest: Non-APT versus APT.

DATA: Sample size for the non-APT subgroup was $n = 11$ and sample size for the APT subgroup was $n = 9$.

MEANS: $\bar{x}_1 = 22.09$; $\bar{x}_2 = 21.0$

VARIANCES: $s_1^2 = 13.513$; $s_2^2 = 14.5009$

HYPOTHESIS:

H_0 : Mean test scores are equal.

H_a : Mean test scores are not equal.

TEST STATISTIC:

$$t = .6492$$

REJECTION REGION:

$t > 2.101$ or $t < -2.101$, where t is based on 18 degrees of freedom ($n_1 + n_2 - 2$ df)

CONCLUSION:

Insufficient evidence to reject the null hypothesis. The observed value of t does not fall into the rejection region. Therefore, the assumption can be made with 95 percent confidence that mean test scores are not statistically different.

Control Group Posttests: Non-APT versus APT.

DATA: Sample size for the non-APT subgroup was $n = 11$ and sample size for the APT subgroup was $n = 8$.

MEANS: $\bar{x}_1 = 21.64$; $\bar{x}_2 = 24.87$

VARIANCES: $s_1^2 = 10.4523$; $s_2^2 = 4.6959$

HYPOTHESIS:

H_0 : Mean test scores are equal.

H_a : Mean test scores are not equal.

TEST STATISTIC:

$$t = -2.3921$$

REJECTION REGION:

$t > 2.110$ or $t < -2.110$, where t is based on 17 degrees of freedom ($n_1 + n_2 - 2$ df)

CONCLUSION:

Reject the null hypothesis. The observed value of t , $t = -2.3921$ falls into the rejection region. Rejection was in the negative or lower tail of the t distribution, indicating that the mean number of scores for the APT subgroup exceeds that of the non-APT subgroup.

These results were unexpected, as pretest scores indicated that the hypothesis of equivalence could not be rejected. The fact that the non-APT subgroup had four more people new to mobility than the APT subgroup could be the reason for the difference in mean scores.

Attitudinal Survey

After taking the computer-based instruction treatment, the test group completed an attitudinal survey. This survey was based on a five-point Likert Scale, where 'one' was Strongly Agree and 'five' was Strongly Disagree. The respondents were asked to respond to 16 statements with the number that best described their opinions. Some statements contained positive and negative approaches, serving as a check of internal validity to ensure people were answering truthfully and not just randomly marking responses.

Statement One. Computer-assisted instruction is interesting.

Statement Fifteen. Computer-based instruction is boring.

Figure 10 shows that 89.47 percent of the respondents (Strongly Agree plus Agree) considered computer-assisted instruction to be interesting versus 84.21 percent who agreed that computer-based instruction was not boring (Figure 11). The slight difference appears to be from a few respondents who were at first undecided in their responses and then changed their minds in answering the latter statement.

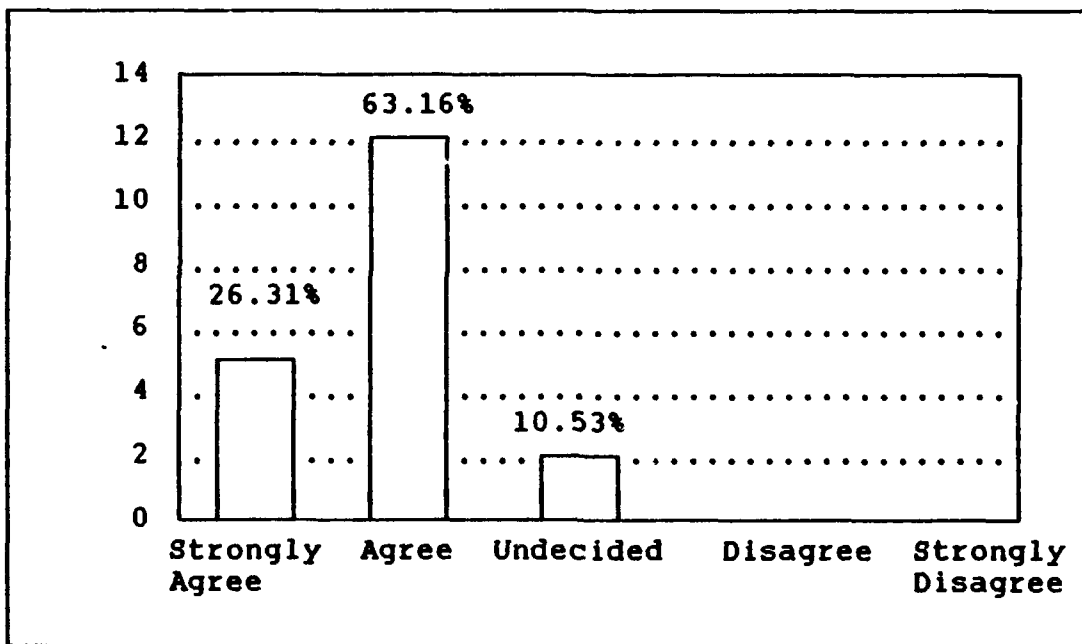


Figure 10. Response Distribution for 'Computer-assisted instruction is interesting.'

Statement Seven. Computer-based instruction is fun.

Though 89.47 percent thought computer-based instruction was interesting, only 78.95 percent felt it

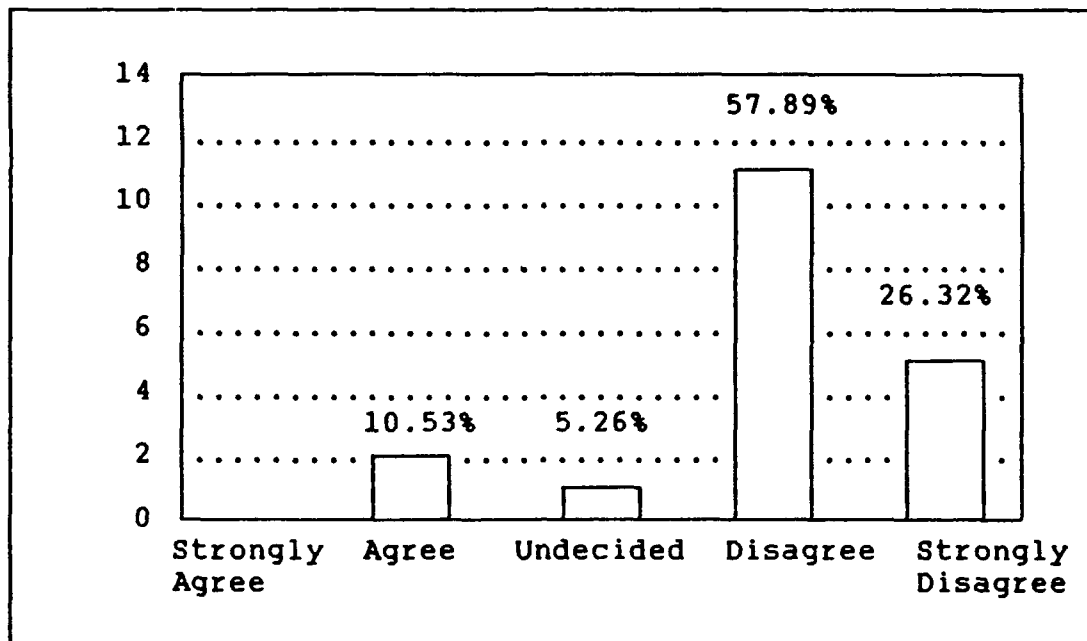


Figure 11. Response Distribution for 'Computer-based instruction is boring.'

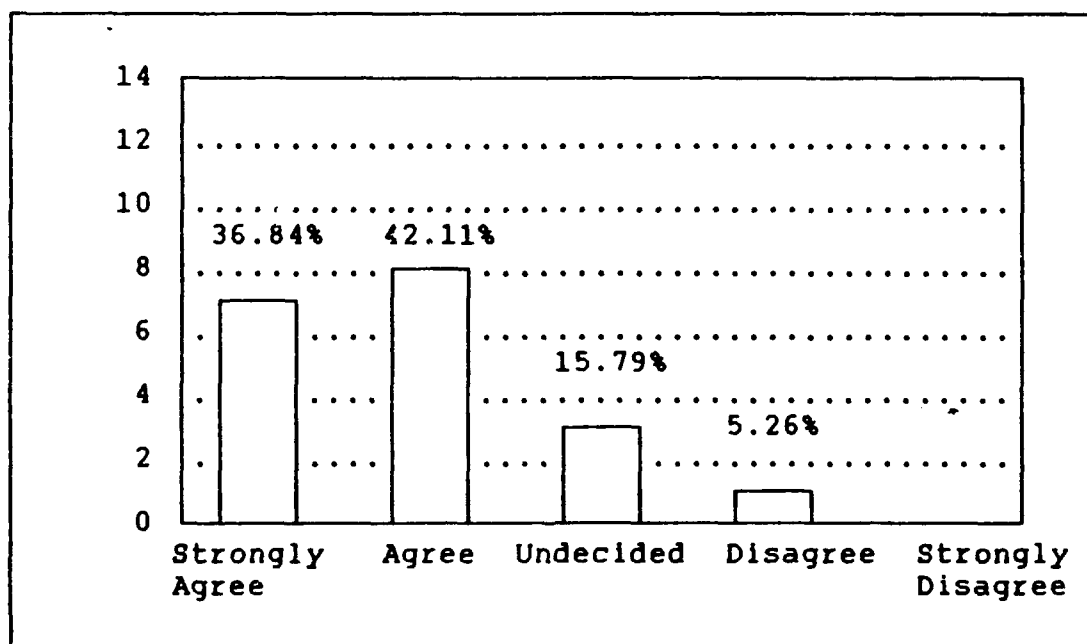


Figure 12. Response Distribution for 'Computer-based instruction is fun.'

was fun (Figure 12). These two statements showed a highly positive correlation of .8470. This could be attributed to the current novelty value of computer-based instruction. New or innovative ways of performing tasks may seem interesting or intriguing, but not equate to some people's definition of what constitutes "fun." Statement seven also showed a negative correlation of $-.6546$ with Statement fifteen (Computer-based instruction is boring).

Statement Two. I learned a lot from this program.

Statement Twelve. Computer-based instruction is a waste of time.

Statement Three. This program was not very challenging.

The majority of respondents felt that computer-based instruction was not a waste of time, and that they actually learned from the program (Figures 14 and 13). The percentage of people who were undecided on whether computer-based instruction was a waste of time equaled the percentage who agreed that the computer-based instruction program was not very challenging (Figure 15). Further analysis showed that the responses were not from the same people. Except for one, respondents who were undecided stated that they disagreed with the statement 'This program was not very challenging.' These two statements showed a slight negative correlation of $-.1429$, so are probably not related.

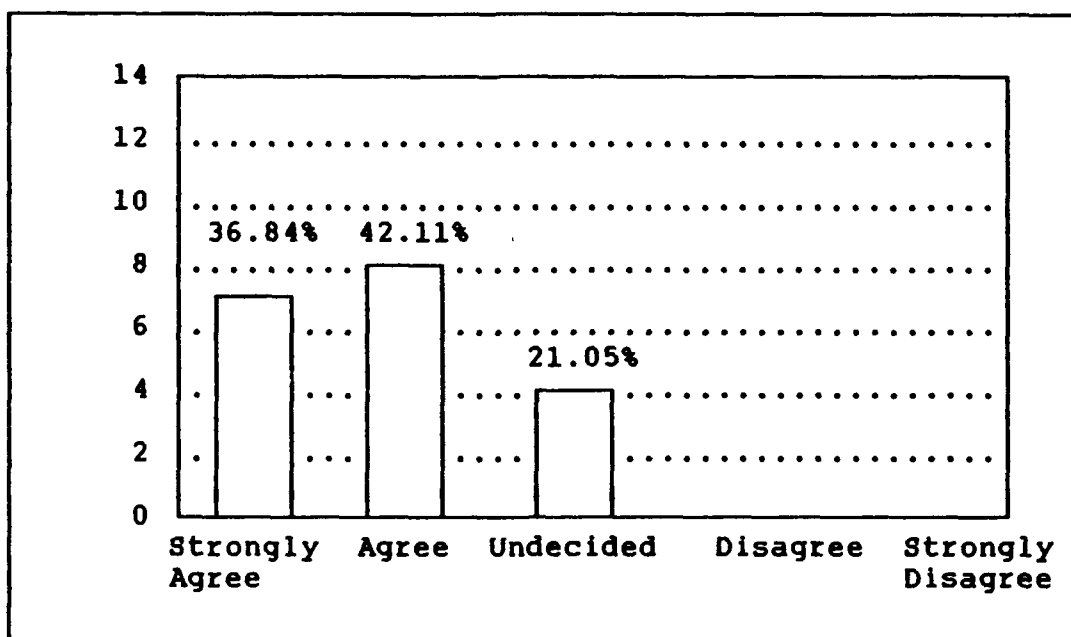


Figure 13. Response Distribution for 'I learned a lot from this program.'

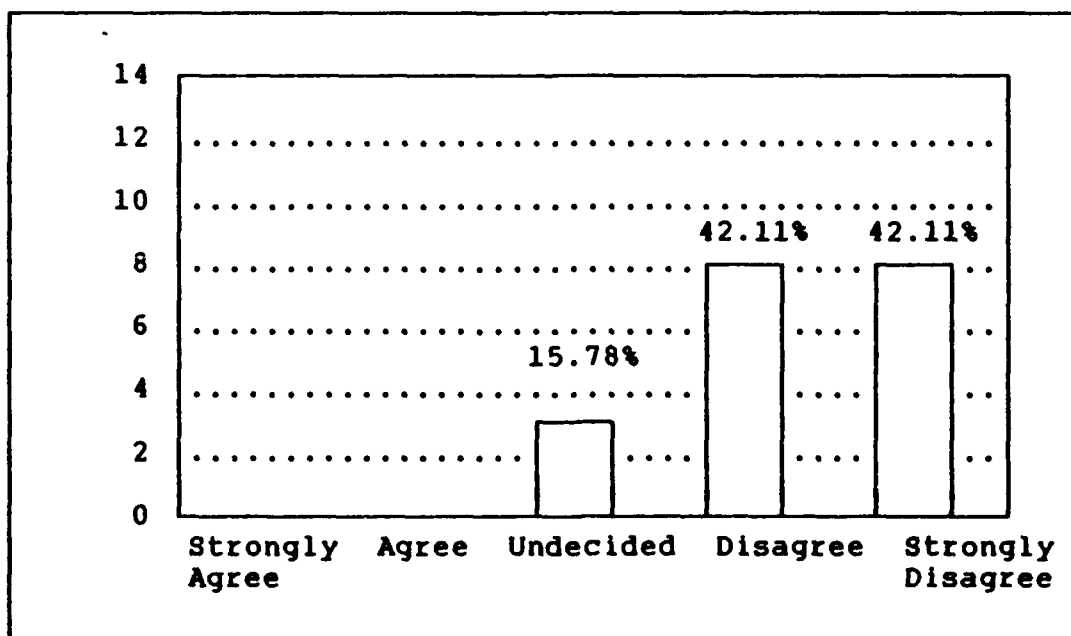


Figure 14. Response Distribution for 'Computer-based instruction is a waste of time.'

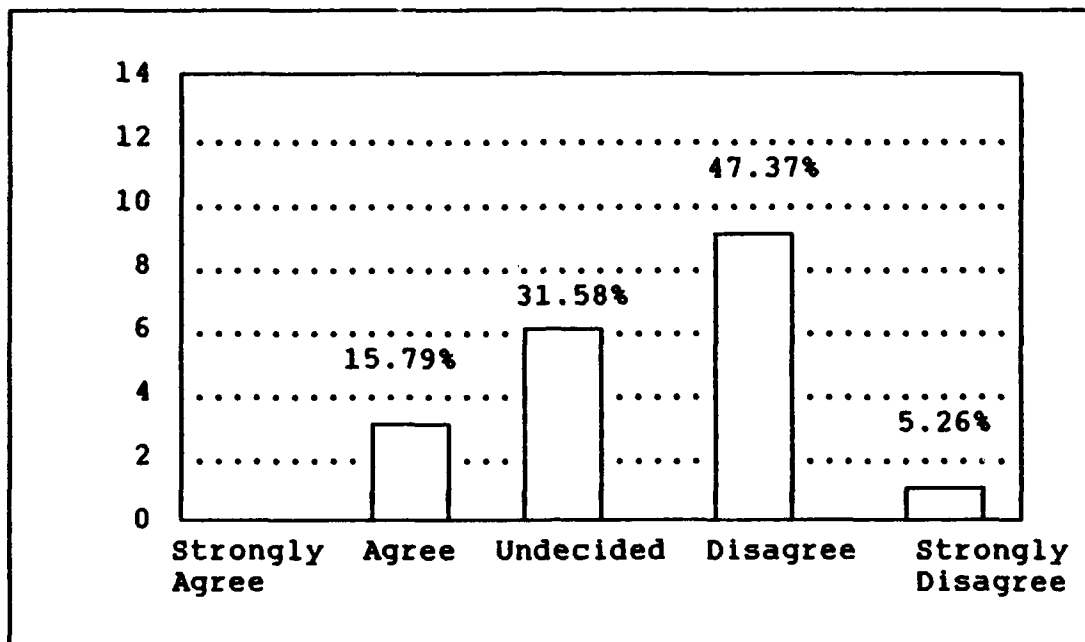


Figure 15. Response Distribution for 'This program was not very challenging.'

Statement Four. I would rather have computer-based mobility training than instructor-led classroom training.

Statement Eight. Computer-based training could eliminate human instructors.

Statement Five. Computers should not be used in training.

Statement Six. Computers could assist instructors in teaching.

Figure 16 demonstrates that 42.10 percent of the respondents would rather have computer-based mobility training than instructor-led classroom training. An equivalent number were undecided. On the other hand, 52.64 percent did not see computer-based training

eliminating human instructors, with 36.84 percent again undecided (Figure 17). These two statements appeared to be highly positively correlated with an r of .8353. Statement eight also appeared to be highly negatively correlated ($-.7376$) with statement five, 'Computers should be used in teaching.' Statement eight showed a very high

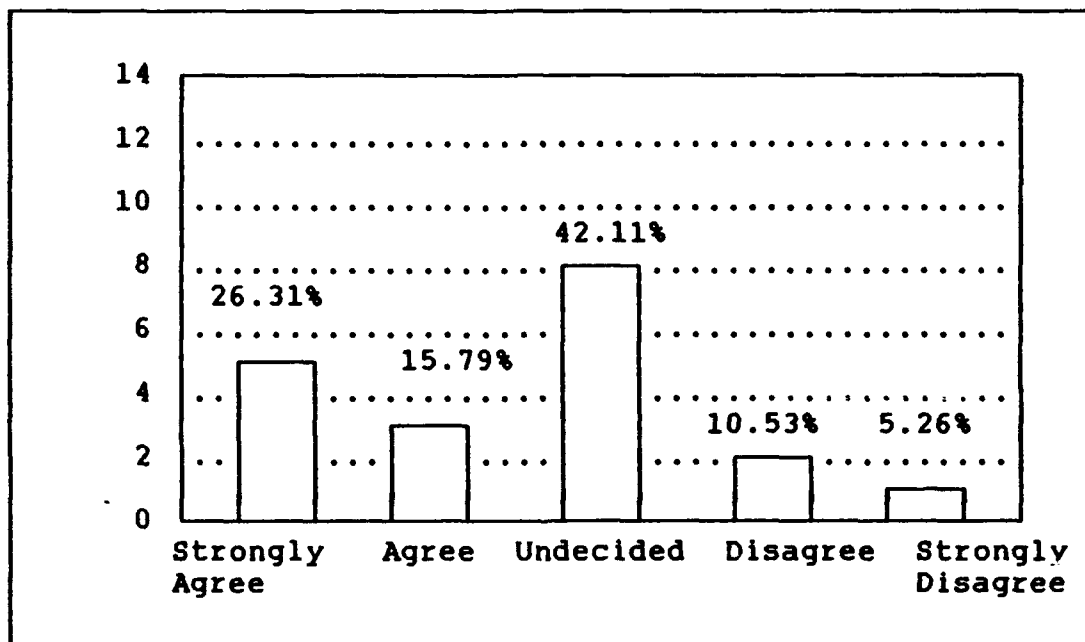


Figure 16. Response Distribution for 'I would rather have computer-based mobility training than instructor-led classroom training.'

negative correlation of $-.9503$ with statement six, 'Computers could assist instructors in teaching.' While 68.42 percent acknowledged that computers should be used in teaching (Figure 18), 84.21 percent felt that computers could assist instructors in teaching (Figure 19).

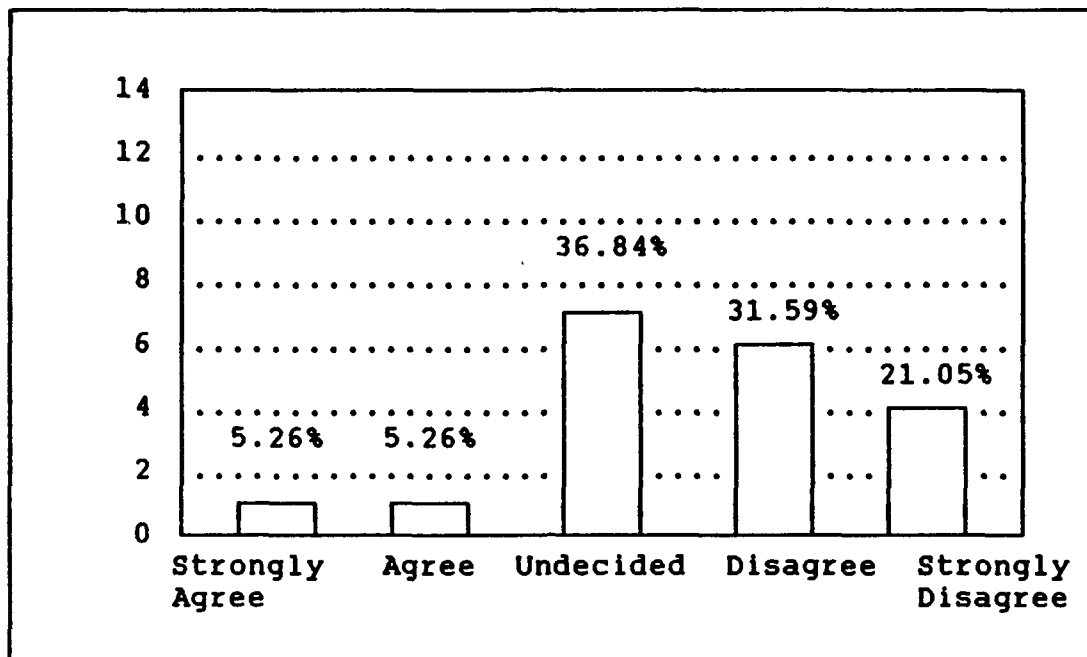


Figure 17. Response Distribution for 'Computer-based training could eliminate human instructors.'

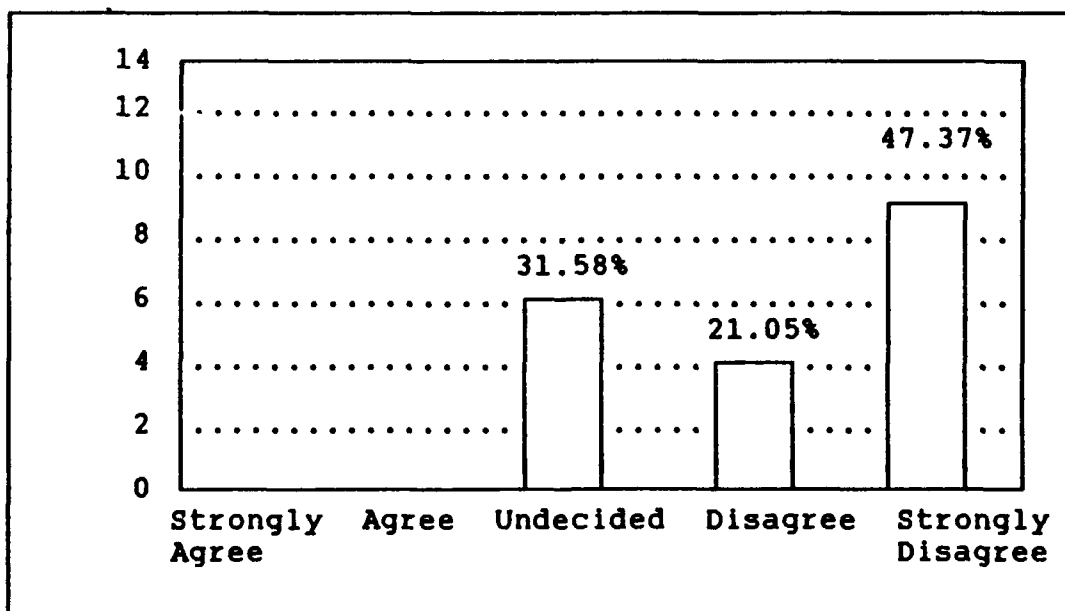


Figure 18. Response Distribution for 'Computers should not be used in training.'

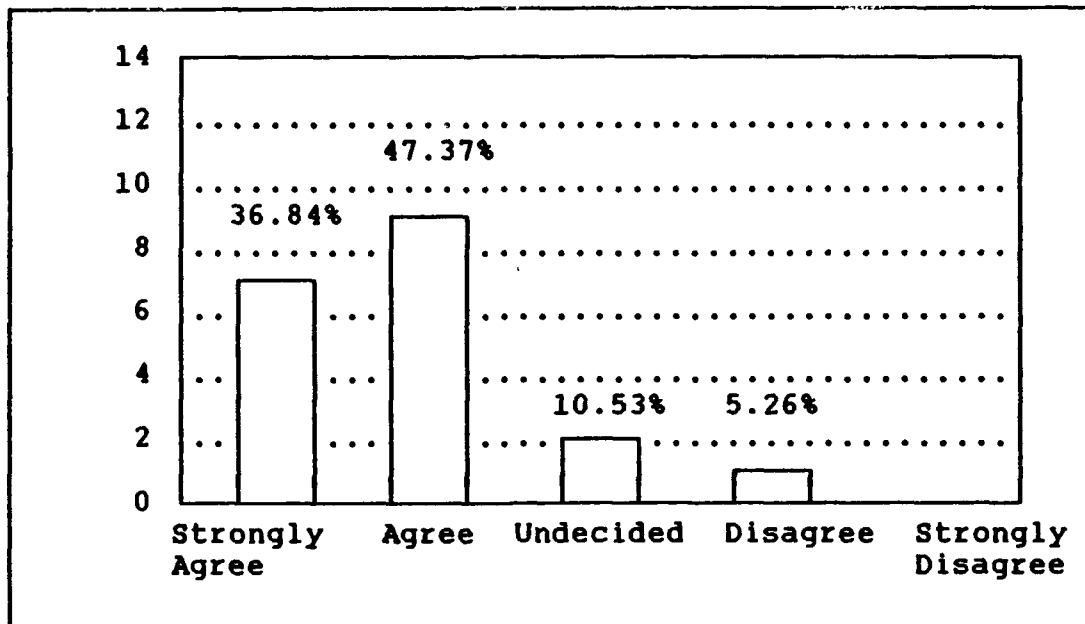


Figure 19. Response Distribution for 'Computers could assist instructors in teaching.'

Statement Nine. Computer teaching bothers me.

Statement Ten. I feel capable of learning from a computer.

Statement Thirteen. I feel uncomfortable learning from a computer.

An equal number of respondents (78.95 percent) stated that not only does computer teaching not bother them, but that they felt capable of learning from a computer (Figures 20 and 21). These statements were highly correlated with a positive r of .9450. There was a slight decrease in the percentage of respondents who felt comfortable learning from a computer (Figure 22). These two statements showed a low correlation of .3858. There

was also a moderate negative correlation of $-.5000$ between those who felt capable of learning from a computer (Figure 21) and those who felt uncomfortable learning from a computer (Figure 22). Those who did not feel comfortable or who felt bothered by computer teaching were the same ones lacking computer experience. It appears that

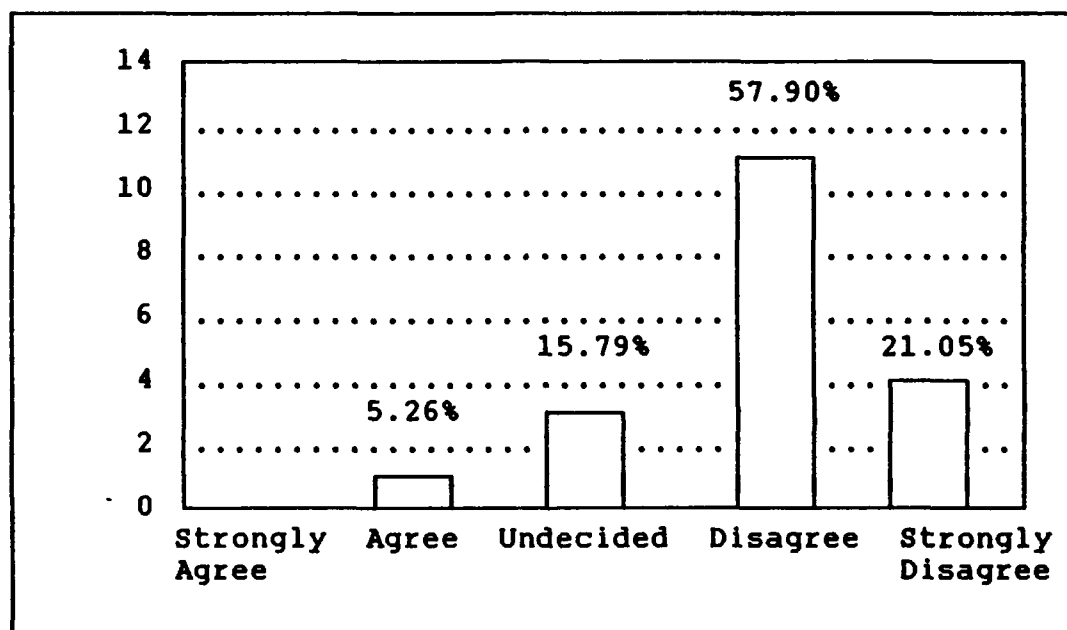


Figure 20. Response Distribution for 'Computer teaching bothers me.'

familiarity in using a computer will extend into easier acceptance of the computer as a teaching and training tool.

Statement Eleven. Computers should be used in mobility training.

Statement Fourteen. Computer-based instruction should be used for refresher mobility training.

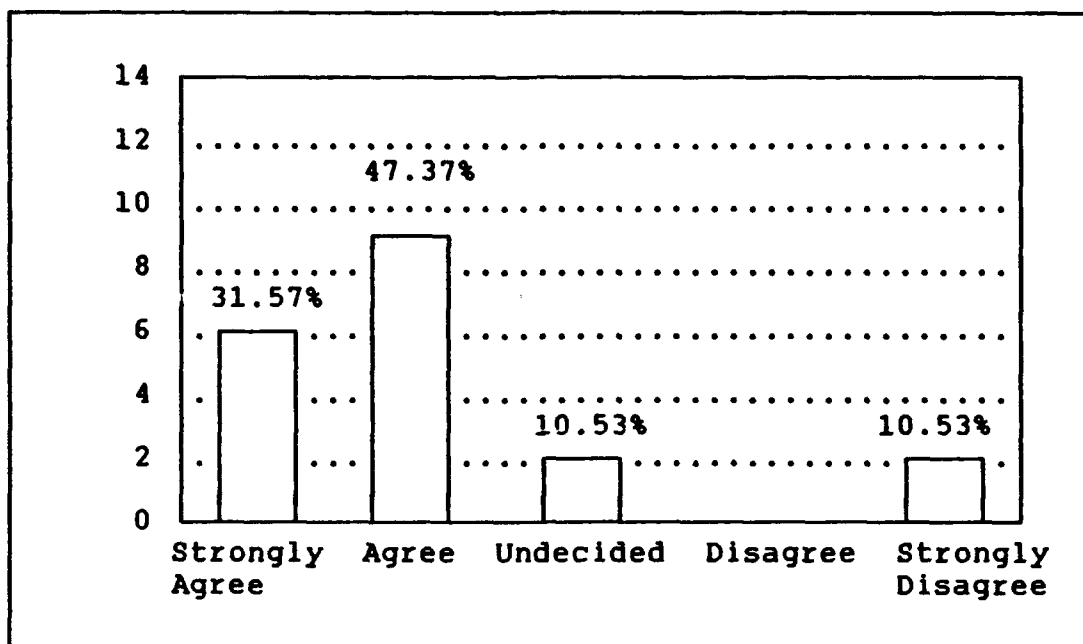


Figure 21. Response Distribution for 'I feel capable of learning from a computer.'

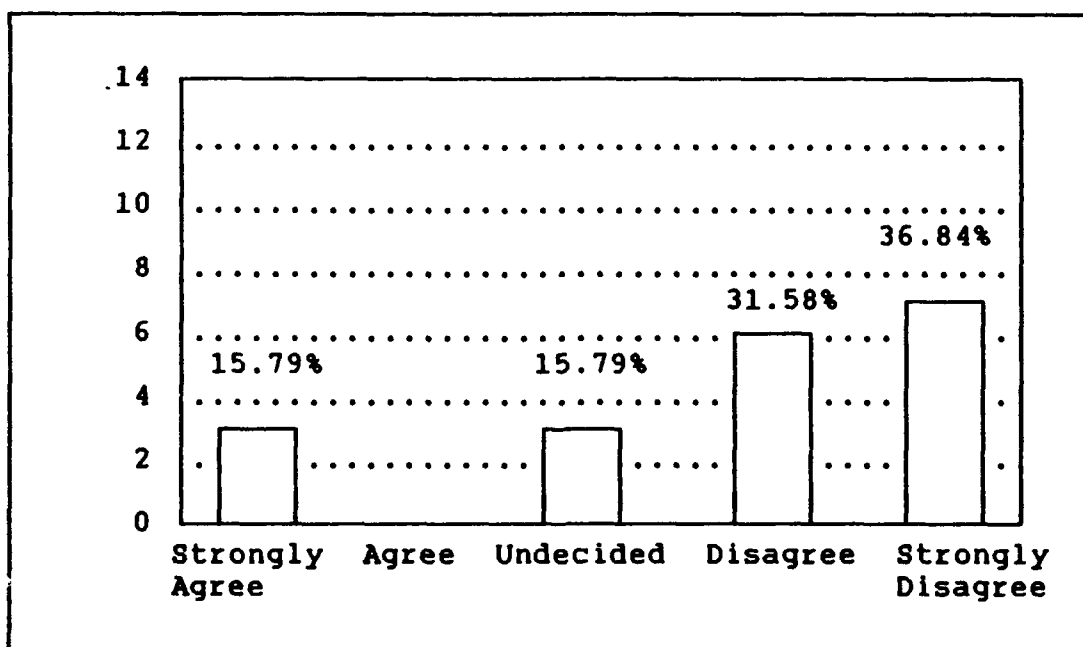


Figure 22. Response Distribution for 'I feel uncomfortable learning from a computer.'

Statement Sixteen. Initial mobility training should be taught using computer-based instruction.

There was very little disagreement on using computers in mobility training, especially in refresher mobility training (Figures 23 and 24). There appeared to be a high correlation of .8352 between these two. The biggest split

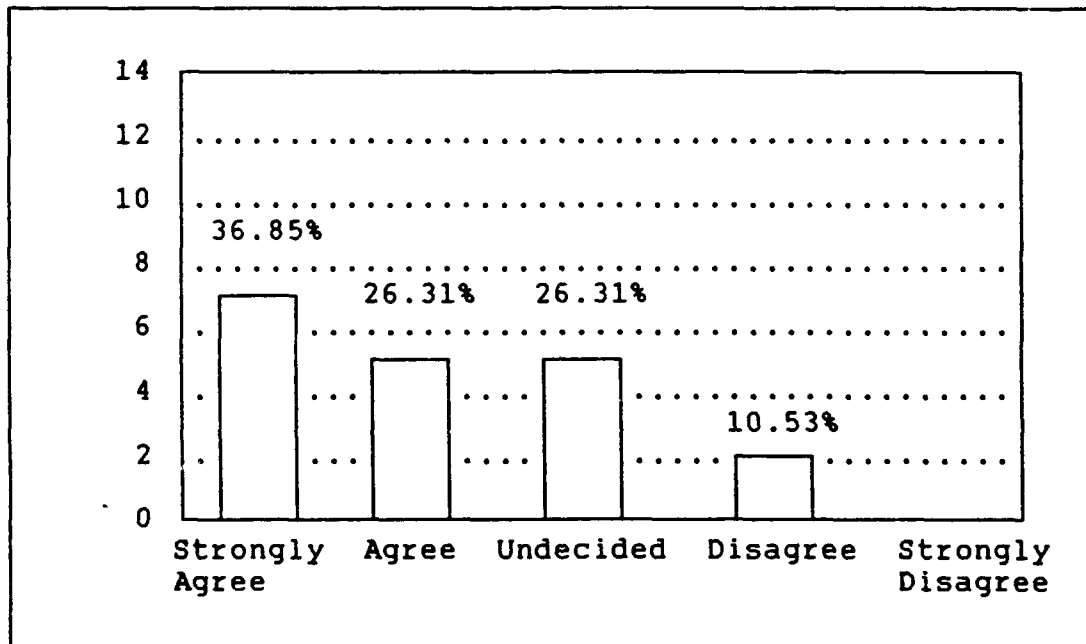


Figure 23. Response Distribution for 'Computers should be used in mobility training.'

appeared in the attitude towards using computer-based instruction in initial mobility training (Figure 25). Here, there was approximately the same number of respondents both for and against, with the rest undecided. There was also a moderate negative correlation of $-.5665$ with the statement 'Computers should be used in mobility training' (Figure 23). This attitude appears logical,

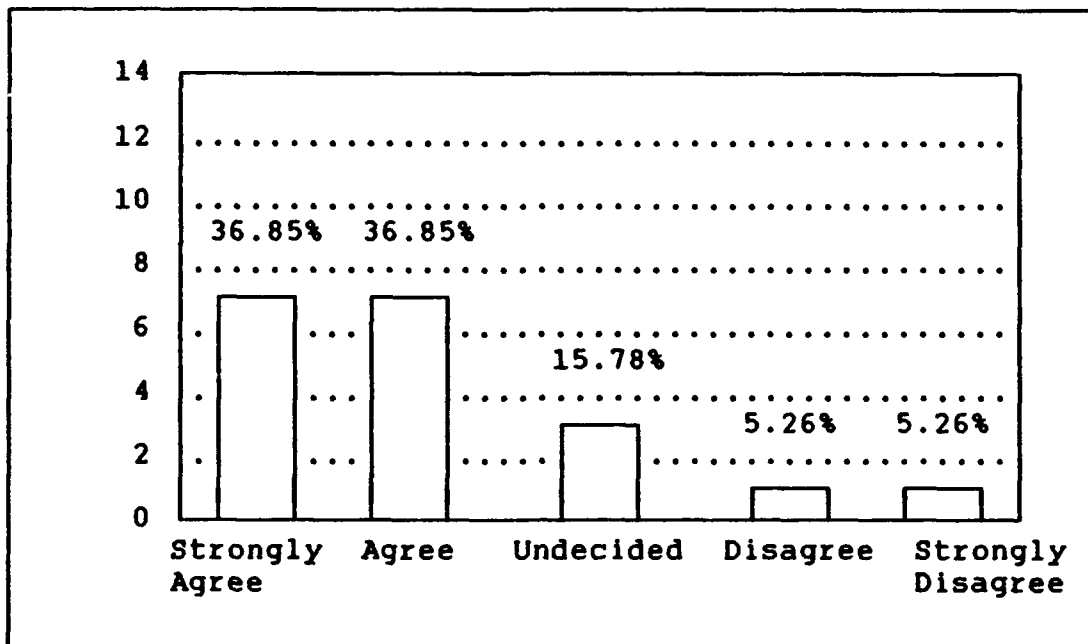


Figure 24. Response Distribution for 'Computer-based instruction should be used for refresher mobility training.'

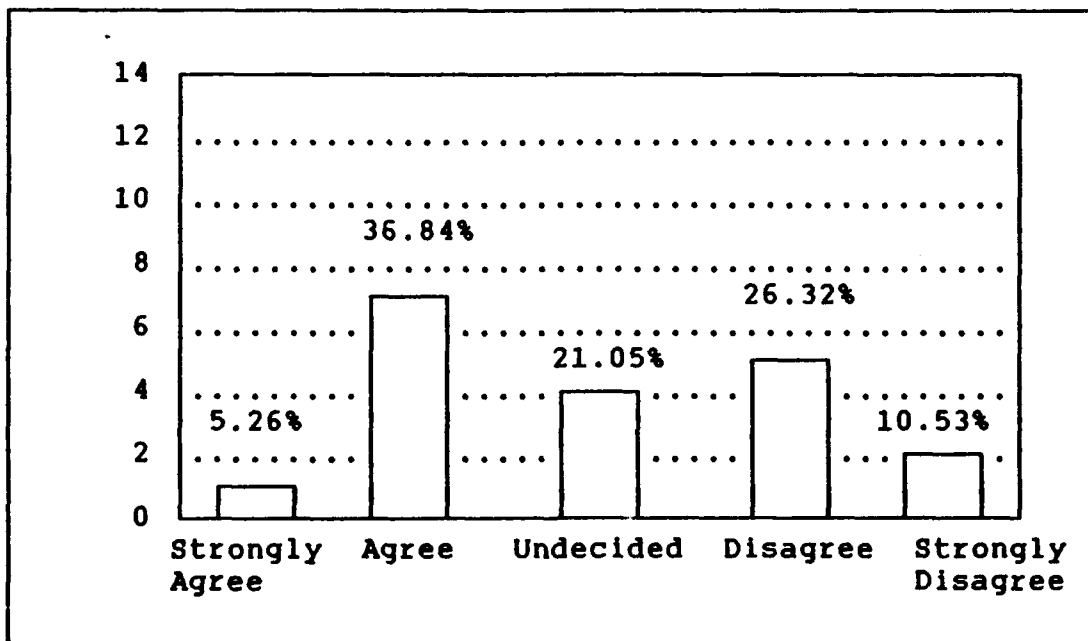


Figure 25. Response Distribution for 'Initial mobility training should be taught using CBI.'

as initial mobility training often needs instructor interaction to understand work center basic tasks and complexities arising from interactions with other mobility work centers. When the time comes for refresher training, basic concepts of the job and how it interacts with other areas are already learned. Therefore, people just need to remind themselves of certain aspects of their task assignments. Using computers for refresher mobility training is therefore seen as a positive concept in light of this attitude.

Demographic Information

Members of the test group (CPI) were asked how many years they had spent performing mobility related duties, and how long they had used computers in their daily, nonmobility jobs. This information was subsequently compared with the results of the attitudinal survey for evidence of any bearing on survey responses.

Eighteen out of nineteen respondents used computers in their daily jobs. Average length was 3.23 years with a minimum of eight months and a maximum of eight years. Fifteen had worked in mobility related fields for at least eight months, with an average of 2.15 years. The maximum time was five years (Table 4).

The first group of comparisons investigates relationships between survey responses and years of

TABLE 4
DEMOGRAPHIC INFORMATION

	MOBILITY POSITION	YRS IN MOBILITY	YRS USING COMPUTERS
1.	Exercise Evaluation Team (EET)	3	7
2.	APT; Transportation Readiness Control Center (TRCC)	5	3
3.	APT Manifester	1	8
4.	TRCC	4	5
5.	Mobility Processing Unit (MPU); APT Hold/Load	3	3
6.	Load Planner	2	4
7.	Load Planner	1	2
8.	Baggage In-checker; APT Controller; Runner	1	7
9.	None	0	0
10.	APT Controller	1	4.5
11.	None	0	0
12.	TRCC Runner	1.5	1.5
13.	APT Controller	0.66	2
14.	Joint Inspector; Hold/Load	5	0.66
15.	None	0	3
16.	Runner; Quality Control	5	5
17.	Clerk	2	3
18.	TRCC; Quality Control	5	6
19.	APT Manifester	1	1

computer usage. The second compares survey responses with years of mobility work center experience. Grouping of statements was the same as that used in the correlations. Data was classified using contingency tables (estimated data in parentheses), and independence was tested using the Chi-Square Test of Independence.

Survey Results versus Years of Computer Usage.

Statements One, Seven, and Fifteen.

HYPOTHESIS:

H_0 : Survey responses and computer usage are independent.

H_a : Survey responses and computer usage are dependent.

TEST STATISTIC:

$$\chi^2 = 4.3568$$

REJECTION REGION:

$\chi^2 > 9.48773$, where 9.48773 ($\chi^2_{.05}$) is based on 4 degrees of freedom $(r - 1)(c - 1)$ df

CONCLUSION:

Insufficient evidence to reject the null hypothesis. The assumption can be made with 95 percent confidence that survey results for Statements One, Seven, and Fifteen are independent of years of computer usage of respondents.

Statements Two, Three, and Twelve.

HYPOTHESIS:

H_0 : Survey responses and computer usage are independent.

H_a : Survey responses and computer usage are dependent.

TABLE 5
STATEMENTS ONE, SEVEN, AND FIFTEEN

SURVEY RESPONSES	YEARS OF COMPUTER USAGE			TOTALS
	UNDER 3	3-5	OVER 5	
STRONGLY AGREE/AGREE	9 (10.7368)	17 (16.1053)	8 (7.1579)	34
UNDECIDED	4 (1.8947)	2 (2.8421)	0 (1.2632)	6
STRONGLY DISAGREE/ DISAGREE	5 (5.3684)	8 (8.0526)	4 (3.5789)	17
TOTALS	18	27	12	57

TEST STATISTIC:

$$\chi^2 = 5.3505$$

REJECTION REGION:

$\chi^2 > 9.48773$, where 9.48773 ($\chi^2_{.05}$) is based on 4
degrees of freedom $(r - 1)(c - 1)$ df

CONCLUSION:

Insufficient evidence to reject the null hypothesis
at the alpha = .05 level of significance. The assumption
can be made with 95 percent confidence that survey results
for Statements Two, Three, and Twelve are independent of
years of computer usage of respondents.

TABLE 6
STATEMENTS TWO, THREE, AND TWELVE

SURVEY RESPONSES	YEARS OF COMPUTER USAGE			TOTALS
	UNDER 3	3-5	OVER 5	
STRONGLY AGREE/AGREE	5 (5.0526)	7 (7.5789)	4 (3.3684)	16
	8 (4.7368)	5 (7.1053)	2 (3.1579)	15
UNDECIDED				
STRONGLY DISAGREE/ DISAGREE	5 (8.2105)	15 (12.3158)	6 (5.4737)	26
TOTALS	18	27	12	57

Statements Four, Five, Six, and Eight.

HYPOTHESIS:

H_0 : Survey responses and computer usage are independent.

H_a : Survey responses and computer usage are dependent.

TEST STATISTIC:

$$\chi^2 = 1.3742$$

REJECTION REGION:

$\chi^2 > 9.48773$, where 9.48773 ($\chi^2_{.05}$) is based on 4
degrees of freedom $(r - 1)(c - 1)$ df

CONCLUSION:

Insufficient evidence to reject the null hypothesis.
The assumption can be made with 95 percent confidence that

survey results for Statements Four, Five, Six, and Eight are independent of years of computer usage of respondents.

TABLE 7
STATEMENTS FOUR, FIVE, SIX, AND EIGHT

SURVEY RESPONSES	YEARS OF COMPUTER USAGE			TOTALS
	UNDER 3	3-5	OVER 5	
STRONGLY AGREE/AGREE	9 (8.2105)	11 (12.3158)	6 (5.4737)	26
UNDECIDED	7 (6.9474)	12 (10.4211)	3 (4.6316)	22
STRONGLY DISAGREE/ DISAGREE	8 (8.8421)	13 (13.2632)	7 (5.8947)	28
TOTALS	24	36	16	76

Statements Nine, Ten, and Thirteen.

HYPOTHESIS:

H_0 : Survey responses and computer usage are independent.

H_a : Survey responses and computer usage are dependent.

TEST STATISTIC:

$$\chi^2 = 3.237$$

REJECTION REGION:

$\chi^2 > 9.48773$, where 9.48773 ($\chi^2_{.05}$) is based on 4 degrees of freedom $(r - 1)(c - 1)$ df

TABLE 8
STATEMENTS NINE, TEN, AND THIRTEEN

SURVEY RESPONSES	YEARS OF COMPUTER USAGE			TOTALS
	UNDER 3	3-5	OVER 5	
STRONGLY AGREE/AGREE	6	9	4	19
	(6)	(9)	(4)	
UNDECIDED	4	4	0	8
	(2.5263)	(3.7895)	(1.6842)	
STRONGLY DISAGREE/ DISAGREE	8	14	8	30
	(9.4737)	(14.2105)	(6.3158)	
TOTALS	18	27	12	57

CONCLUSION:

Insufficient evidence to reject the null hypothesis.
The assumption can be made with 95 percent confidence that survey results for Statements Nine, Ten, and Thirteen are independent of years of computer usage of respondents.

Statements Eleven, Fourteen, and Sixteen.

HYPOTHESIS:

H_0 : Survey responses and computer usage are independent.

H_a : Survey responses and computer usage are dependent.

TEST STATISTIC:

$$\chi^2 = 8.1398$$

TABLE 9
STATEMENTS ELEVEN, FOURTEEN, AND SIXTEEN

SURVEY RESPONSES	YEARS OF COMPUTER USAGE			TOTALS
	UNDER 3	3-5	OVER 5	
STRONGLY AGREE/AGREE	8 (10.7368)	15 (16.1053)	11 (7.1579)	34
UNDECIDED	6 (3.7895)	5 (5.6842)	1 (2.5263)	12
STRONGLY DISAGREE/ DISAGREE	4 (3.4737)	7 (5.2105)	0 (2.3158)	11
TOTALS	18	27	12	57

REJECTION REGION:

$\chi^2 > 9.48773$, where 9.48773 ($\chi^2_{.05}$) is based on 4
degrees of freedom $(r - 1)(c - 1)$ df

CONCLUSION:

Insufficient evidence to reject the null hypothesis
at the alpha = .05 level of significance. Therefore, the
assumption can be made with 95 percent confidence that
survey results for Statements Eleven, Fourteen, and
Sixteen are independent of years of computer usage of
respondents.

Survey Results versus Years of Mobility Experience.

Statements One, Seven, and Fifteen.

HYPOTHESIS:

H_0 : Survey responses and mobility experience are independent.

H_a : Survey responses and mobility experience are dependent.

TEST STATISTIC:

$$\chi^2 = 1.4145$$

REJECTION REGION:

$\chi^2 > 9.48773$, where 9.48773 ($\chi^2_{.05}$) is based on 4 degrees of freedom $(r - 1)(c - 1)$ df

CONCLUSION:

Insufficient evidence to reject the null hypothesis at the $\alpha = .05$ level of significance. Therefore, the assumption can be made with 95 percent confidence that survey results for Statements One, Seven, and Fifteen are independent of years of mobility experience of respondents.

Statements Two, Three, and Twelve.

HYPOTHESIS:

H_0 : Survey responses and mobility experience are independent.

H_a : Survey responses and mobility experience are dependent.

TABLE 10
STATEMENTS ONE, SEVEN, AND FIFTEEN

SURVEY RESPONSES	YEARS OF MOBILITY EXPERIENCE			TOTALS
	UNDER 2	2-3	OVER 3	
STRONGLY AGREE/AGREE	16 (17.3684)	7 (6.9474)	10 (8.6842)	33
	5 (3.6842)	1 (1.4737)	1 (1.8421)	7
UNDECIDED				
STRONGLY DISAGREE/ DISAGREE	9 (8.9474)	4 (3.5789)	4 (4.4737)	17
TOTALS	30	12	15	57

REJECTION REGION:

$\chi^2 > 9.48773$, where 9.48773 ($\chi^2_{.05}$) is based on 4 degrees of freedom $(r - 1)(c - 1)$ df

CONCLUSION:

Insufficient evidence to reject the null hypothesis at the $\alpha = .05$ level of significance. Therefore, the assumption can be made with 95 percent confidence that survey results for Statements Two, Three, and Twelve are independent of years of mobility experience of respondents.

TABLE 11
STATEMENTS TWO, THREE, AND TWELVE

SURVEY RESPONSES	YEARS OF MOBILITY EXPERIENCE			TOTAL
	UNDER 2	2-3	OVER 3	
STRONGLY AGREE/AGREE	8 (8.4211)	3 (3.0877)	5 (4.4912)	16
UNDECIDED	10 (8.4211)	4 (3.0877)	2 (4.4912)	16
STRONGLY DISAGREE/ DISAGREE	12 (13.1579)	4 (4.8246)	9 (7.0175)	25
TOTALS	30	11	16	57

Statements Four, Five, Six, and Eight.

HYPOTHESIS:

H_0 : Survey responses and mobility experience are independent.

H_a : Survey responses and mobility experience are dependent.

TEST STATISTIC:

$$\chi^2 = 1.0877$$

REJECTION REGION:

$\chi^2 > 9.48773$, where 9.48773 ($\chi^2_{.05}$) is based on 4 degrees of freedom $(r - 1)(c - 1)$ df

CONCLUSION:

Insufficient evidence to reject the null hypothesis at the $\alpha = .05$ level of significance. Therefore, the assumption can be made with 95 percent confidence that survey results for Statements Four, Five, Six, and Eight are independent of years of mobility experience of respondents.

TABLE 12
STATEMENTS FOUR, FIVE, SIX, AND EIGHT

SURVEY RESPONSES	YEARS OF MOBILITY EXPERIENCE			TOTALS
	UNDER 2	2-3	OVER 3	
STRONGLY AGREE/AGREE	14 (13.6812)	4 (5.4737)	8 (6.8421)	26
	11 (11.5789)	5 (4.6316)	6 (5.7895)	22
UNDECIDED				
STRONGLY DISAGREE/ DISAGREE	15 (14.7368)	7 (5.8947)	6 (7.3684)	28
TOTALS	40	16	20	76

Statements Nine, Ten, and Thirteen.

HYPOTHESIS:

H_0 : Survey responses and mobility experience are independent.

H_a : Survey responses and mobility experience are dependent.

TABLE 13
STATEMENTS NINE, TEN, AND THIRTEEN

SURVEY RESPONSES	YEARS OF MOBILITY EXPERIENCE			TOTALS
	UNDER 2	2-3	OVER 3	
STRONGLY AGREE/AGREE	11 (10)	3 (4)	5 (5)	19
	5 (4.2105)	3 (1.6842)	0 (2.1053)	8
UNDECIDED				
STRONGLY DISAGREE/ DISAGREE	14 (15.7895)	6 (6.3158)	10 (7.8947)	30
TOTALS	30	12	15	57

TEST STATISTIC:

$$\chi^2 = 4.4113$$

REJECTION REGION:

$\chi^2 > 9.48773$, where 9.48773 ($\chi^2_{.05}$) is based on 4
degrees of freedom $(r - 1)(c - 1)$ df

CONCLUSION:

Insufficient evidence to reject the null hypothesis
at the alpha = .05 level of significance. Therefore, the
assumption can be made with 95 percent confidence that
survey results for Statements Nine, Ten, and Thirteen are
independent of years of mobility experience of
respondents.

Statements Eleven, Fourteen, and Sixteen.

HYPOTHESIS:

H_c : Survey responses and mobility experience are independent.

H_a : Survey responses and mobility experience are dependent.

TEST STATISTIC:

$$\chi^2 = 3.6133$$

REJECTION REGION:

$\chi^2 > 9.48773$, where 9.48773 ($\chi^2_{.05}$) is based on 4 degrees of freedom $(r - 1)(c - 1)$ df

CONCLUSION:

Insufficient evidence to reject the null hypothesis at the $\alpha = .05$ level of significance. Therefore, the assumption can be made with 95 percent confidence that survey results for Statements Eleven, Fourteen, and Sixteen are independent of years of mobility experience of respondents.

Conclusion

This chapter covered the analysis of data compiled as a result of comparing CBI versus instructor-led training. Results of the Wilk-Shapiro test for normality determined the sample populations to be normally distributed. Pooled-variance t-tests demonstrated with 95 percent confidence that there is no difference between the two methods of training. A post experiment attitudinal survey

TABLE 14

STATEMENTS ELEVEN, FOURTEEN, AND SIXTEEN

SURVEY RESPONSES	YEARS OF MOBILITY EXPERIENCE			TOTALS
	UNDER 2	2-3	OVER 3	
STRONGLY AGREE/AGREE	16 (17.8947)	8 (7.1579)	10 (8.9474)	34
UNDECIDED	8 (6.3158)	3 (2.5263)	1 (3.1579)	12
STRONGLY DISAGREE/ DISAGREE	6 (5.7895)	1 (2.318858)	4 (2.8947)	11
TOTALS	30	12	15	57

concluded that refresher mobility training would be a good area for CBI, but that instructors were still preferred for initial training. Finally, an analysis of demographic information revealed that survey responses were not related to number of years of computer or mobility experience.

Chapter V proffers conclusions from the data analysis, along with recommendations for further study. The four investigative questions are answered based on observations during the CBI experiment and conclusions drawn from the literature review. Recommendations for future research within both the transportation career

field and transportation mobility are tendered. A response to the problem statement finishes the outline for Chapter V.

V. Conclusions and Recommendations

Introduction

The first four chapters of this thesis presented research designed to determine whether computer-based instruction (CBI) is better than the lecture method for teaching transportation mobility. Four investigative questions guided this research:

1. What are the advantages and disadvantages to CBI versus the traditional classroom method?
2. What are the steps in CBI courseware development?
3. Is CBI development possible in the transportation career field?
4. Does CBI provide equal or greater comprehension (i.e., effective) than classroom training?

An experiment was conducted to answer these questions, using a pretest/posttest experimental design. The sample population was split into two groups, a test group and a control group. The test group was instructed by CBI while the control group was taught by the traditional lecture method. The problem statement guiding this research was: Is CBI better than the lecture method for teaching transportation mobility?

Chapter V consists of six sections. The first four sections correspond to the research questions. The fifth

section discusses the problem statement. The last section contains recommendations for future research.

Research Question Number 1

What are the advantages and disadvantages to CBI versus the traditional classroom method?

Experiment. The experimental CBI paralleled many of the advantages and disadvantages found in the literature review. One-on-one learning allowed students to review the lesson and work on weak areas. During the experiment, several students were observed taking advantage of the review function to ensure they comprehended the lesson. Ability to remediate portions of the lesson had the additional benefit of permitting the student to be in control of the teaching-learning process. Schwandt and Whiting contend that student control of the teaching-learning process motivates students to reach their full potential in all areas of the learning process (63:32; 78:282).

The experiment was set to last for one hour, although students were allowed to work at their own pace within the set time constraints. Self-pacing produced a spread of completion times with a minimum of 15 minutes for the faster students and a maximum of 45 minutes for the slower ones. According to Oakes and Stewart, the amount of time students spend learning is proportional to their various learning speeds, abilities, and preferences (51:74;

68:444). Test Group APT and non-APT test score comparison demonstrated self-pacing (with its accompanying advantage of remediation) leveled out the test scores between the two subgroups. The non-APT subgroup reviewed lesson material up to three times as long as the APT subgroup. Posttest results showed no statistical difference between the two subgroups.

The location selected (Air Force Institute of Technology (AFIT) computer classroom) was not the usual mobility training classroom. Using a different locale demonstrated that learning is not dependent on location. Therefore, students can be trained either in the work place or at home using their own personal computers. Research findings by Hocking, Marien, and Whiting supported this position (34:22; 44:19; 78:282).

One of the drawbacks in this experiment was the time required to develop the CBI. Approximately 150 hours were spent designing, developing, and debugging the program. Learning how to use the authoring package took another 25 hours. Total time was slightly less than the maximum of 200 hours Wehr states CBI designers should plan for each hour of instruction (74:21). In addition, when a question was asked in the course of the lesson, the authoring program did not allow review of material until after three incorrect answers.

Research Question 2

What are the steps in CBI courseware development?

Experiment. Development of the experimental CBI was based on Morrison and Ross' Four-Stage Model for planning CBI (See Figure 1). The first step outlined the overall lesson program initial flowchart. Storyboard design was the next step (Appendix A). This stage not only included computer screen design, but also the computer coding necessary for the program to run. The third phase encompassed detailed flowcharts which were separated into the same subareas as the CBI (Chapter III, pages 38-42). Evaluating the program was the final stage. Weaknesses were pinpointed and corrections made; additional frames were added to clarify instructional objectives; and the computer codes were verified.

TUTOR.COM, an authoring program presently site-licensed at AFIT, was used to develop the CBI. Text and line graphics were developed in a word processing package (WORDPERFECT 5.0), saved as an ASCII text file, and imported into TUTOR.COM. Corrections were made using a text editor at the operating system prompt. These procedures eliminated the need to learn ASCII coding for developing graphics within TUTOR.COM.

Lesson areas within the courseware, in addition to the CBI workbook, were based on the Wright-Patterson Air Force

Base (AFB) air passenger terminal (APT) lesson plan and workbook. The pretest/posttest was a compilation of two different examinations presently in use at Wright-Patterson.

Research Question Number 3

Is CBI development possible in the transportation career field?

Experiment. CBI development is definitely possible in the transportation career field. APT procedures employed in mobility parallel those used in noncontingency operations. Therefore, if CBI is effective in the APT, it is logical to assume its viability in teaching similar procedures utilized in nonmobility operations. For example, the experiment's CBI was effective in teaching people how to manifest passengers for mobility operations. The same form, AF Form 96, is used to manifest passengers for nonmobility operations. Thus, CBI should be able to teach peacetime manifesting as well as contingency manifesting. The Wright-Patterson transportation mobility instructors concluded that the CBI developed for this experiment exhibited great potential for training in all areas of transportation mobility.

The challenge is to determine where CBI would be most effective. Chapter II states that the decision to use CBI should be on a case by case basis, weighing both the advantages and disadvantages. Qualitative factors, such as

students' attitudes, along with quantitative factors must be considered when contemplating the implementation of CBI. The post experiment attitudinal survey concluded that refresher mobility training would be a good area for CBI, but that instructors were still preferred for initial training. This is understandable as many instructors teach management "whys and wherefores" along with basic concepts. Once the reasons for certain actions are learned, additional training would be just a refresher exercise.

In addition, answers to the survey were compared to the number of years of computer usage and the years of mobility experience of the respondents using the chi-square test of independence. Findings stated that survey results were not dependent on years of computer usage nor mobility experience. Prior computer or mobility experience was therefore not a prerequisite for CBI usage within mobility training.

Research Question Number 4

Does CBI provide equal or greater comprehension (i.e., effective) than classroom training?

Experiment. Pooled-variance t-tests were utilized to compare pretest scores for the test group with the control group's pretest scores. In addition, posttest scores of both groups were compared for equivalency. Results determined with 95 percent confidence that there was no statistical difference between CBI and classroom training

pertaining to comprehension. Therefore, the assumption can be made that CBI is as effective as classroom training (instructor-led) for the APT area of mobility.

A finding of no statistical or significant difference is a viable result. If two media of instruction are equally effective, then the decision on which one to use can be based on financial factors and availability of resources (77:33). In addition, it also supports the case for exportable courseware. If CBI is as effective as instructor-led training, then CBI can be used in areas where there are no instructors, or in cases where scheduling another class would not be feasible. People can therefore be trained anytime and in any location.

Student's attitudes, however, could be a block to implementing CBI. The attitudinal survey concluded that refresher mobility training was more feasible than initial training for implementing CBI. Students also agreed computers could assist but not eliminate instructors. A chi-square test of independence demonstrated these answers were not dependent on years of computer usage or mobility experience. Taking student attitudes into consideration when planning CBI could ensure a smoother integration of CBI into one's training program.

Response to the Problem Statement

The question this experiment set up to answer was, "Is CBI better than the lecture method for teaching

transportation mobility?" Statistical analyses demonstrated that, based on the APT CBI versus instructor-led experiment conducted, there was no significant difference in the results between treatment groups.

CBI did not outperform the lecture method in this case. However, there were signs that CBI closed the experience gap for APT versus non-APT. Analysis of the Control Group's APT and non-APT posttests show the mean number of scores for the APT subgroup exceeded that of the non-APT subgroup. Posttest comparison of the Test Group's APT and non-APT scores indicated there was no significant difference between the two subgroups after the CBI treatment.

Recommendations for Future Research

The APT encompasses a small area of transportation mobility. CBI is feasible in the APT, but will it be effective in the air cargo terminal or submotorpool? Can CBI be used in the transportation resource readiness center/transportation control unit arena where constant management decision making results in higher levels of cognitive activity? Could CBI coupled with instructional video disk or satellite replace instructors in transportation mobility? Is CBI an effective medium of unit level training for all transportation career fields?

This concept of using CBI for training could work for procedural tasks in nonmobility areas of transportation such as fleet management, where courseware covering procedures of the vehicle control function or of the fleet manager could be developed. Local procedures for dispatching and controlling of vehicles would be easy to develop into CBI. CBI covering the household goods section within the traffic management office (TMO) could be viable as an adjunct to on-the-job training. Using CBI in these areas would assist in learning basic concepts and at the same time, possibly decrease over-the-shoulder supervision. In addition, there are barriers to integration and implementation in the educational system. Are these barriers the same ones challenging the Air Force today? And if so, how can the Air Force overcome them? In light of these questions, the following areas for future research are tendered:

1. Test CBI in other areas of transportation mobility.
2. Look at using other media of instruction with transportation mobility; i.e., video disk, or satellite.
3. Investigate the effectiveness of CBI in the Vehicle Maintenance, Vehicle Management, and Traffic Management functions.

4. Examine barriers to integration of alternative approaches to training in the Air Force, and subsequently, to training in transportation.

Conclusion

CBI permits students to be in control of the teaching-learning process. One-on-one learning allows review of the lesson and facilitates mastery of weak areas. In addition, learning was not dependent on location.

Decisions to use CBI should be on a case by case basis weighing financial factors, resource availability, and student attitudes. The post experiment attitudinal survey concluded refresher mobility training would be a good area for CBI, but that instructors are still preferred for initial training.

Results of pooled-variance t-tests determined with 95 percent confidence that there was no statistical difference between CBI and classroom training pertaining to comprehension. Therefore, the assumption can be made that CBI is as effective as classroom training for the APT area of mobility.

Transportation, of which the APT is a small portion, drives the execution of a base mobility plan (19:1). Quality training for transportation personnel becomes an influential factor in determining the ability to rapidly deploy in response to changing world situations.

Training issues need to be addressed within transportation. Training technology is the wave of the future. The challenge will be to integrate innovative training methods into a total quality training program.

Appendix A: CBI Storyboards

DISPLAY ID: TITLE	COURSE: DS-MO-006	OBJECTIVE #: 01
SUBJECT: AIR PASSENGER TERMINAL	SEQUENCE #: 01	

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14
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WELCOME TO THE WIDE WORLD
OF TRANSPORTATION MOBILITY!

+ THE FOLLOWING WILL BE A TUTORIAL BASED ON THE +
+ AIR PASSENGER TERMINAL (APT). THIS COURSE IS +
+ DESIGNED TO ENABLE YOU TO UNDERSTAND THE ROLE, +
+ ORGANIZATION, AND COMPOSITION OF THE APT. +

* ^F13GOOD LUCK!!^F14 *

.PA01

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-0 COLOR: BLUE FOREGROUND/BLACK BACKGROUND

OTHER: ^F13: CHANGES TEXT COLOR TO MAGENTA

Figure 26. CBI Storyboard Number 1

DISPLAY ID: AUTHOR

COURSE: DS-MO-006

OBJECTIVE #: 01

SUBJECT: AIR PASSENGER TERMINAL

SEQUENCE #: 02

AIR PASSENGER TERMINAL
TUTORIAL

MELISSA A. HIGGINBOTHAM
CAPTAIN, USAF

.PA02

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: .PA STANDS FOR PAGE

Figure 27. CBI Storyboard Number 2

DISPLAY ID: INTRO

COURSE: DS-MO-006

OBJECTIVE #: 01D

SUBJECT: AIR PASSENGER TERMINAL

SEQUENCE #: 01

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14
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^F13INTRODUCTION^F14

^F13AFR 28-4^F14 PRESCRIBES THE ACTIONS NECESSARY FOR
DEPLOYMENT OF FORCES. MOBILIZATION CREATES A NEED FOR
COMPRESSED TIME FRAMES. WE MUST MAINTAIN A LEVEL OF
PROFICIENCY IN ORDER TO MEET WARTIME AUGMENTATION REQUIREMENTS.

.PA03

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F13: CHANGES COLOR TO MAGENTA

^F14: CHANGES COLOR TO YELLOW

Figure 28. CBI Storyboard Number 3

DISPLAY ID: OBJECT COURSE: DS-MO-006 OBJECTIVE #: 01D
SUBJECT: AIR PASSENGER TERMINAL SEQUENCE #: 02

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^F15*****^F14

IN THIS TUTORIAL, YOU WILL LEARN HOW THE APT FITS INTO
THE OVERALL ^F13MOBILITY ORGANIZATION^F14; HOW TO ^F13POST
YOUR STATUS BOARDS^F14 USING THE SCHEDULE OF EVENTS; THE
PROPER ^F13IN-CHECK PROCEDURES^F14; AND STEP-BY-STEP
PROCEDURES FOR ^F13PASSENGER MANIFESTING^F14.

^F15*****

.PA04

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F15: CHANGES COLOR TO WHITE

Figure 29. CBI Storyboard Number 4

DISPLAY ID: TRCC ORG COURSE: DS-MO-006

OBJECTIVE #: 02

SUBJECT: AIR PASSENGER TERMINAL

SEQUENCE #: 01

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LET'S TAKE A LOOK AT THE TRANSPORTATION READINESS
CONTROL CENTER (^F13TRCC^F14) ORGANIZATION. TO HELP
YOU, THE FOLLOWING ABBREVIATIONS ARE IDENTIFIED:

^F15*****^F14

^F13MCC^F14: MOBILITY CONTROL CENTER ^F13SMP^F14: SUBMOTORPOOL

^F13APT^F14: AIR PASSENGER TERMINAL ^F13ACT^F14: AIR CARGO
TERMINAL

^F13SCMT^F14: SURFACE CARGO MOVEMENT TERMINAL

^F13ATOC^F14: AIR TERMINAL OPERATIONS CENTER

.PA05

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F13: CHANGES COLOR TO MAGENTA

^F14: CHANGES COLOR TO YELLOW

^F15: CHANGES COLOR TO WHITE

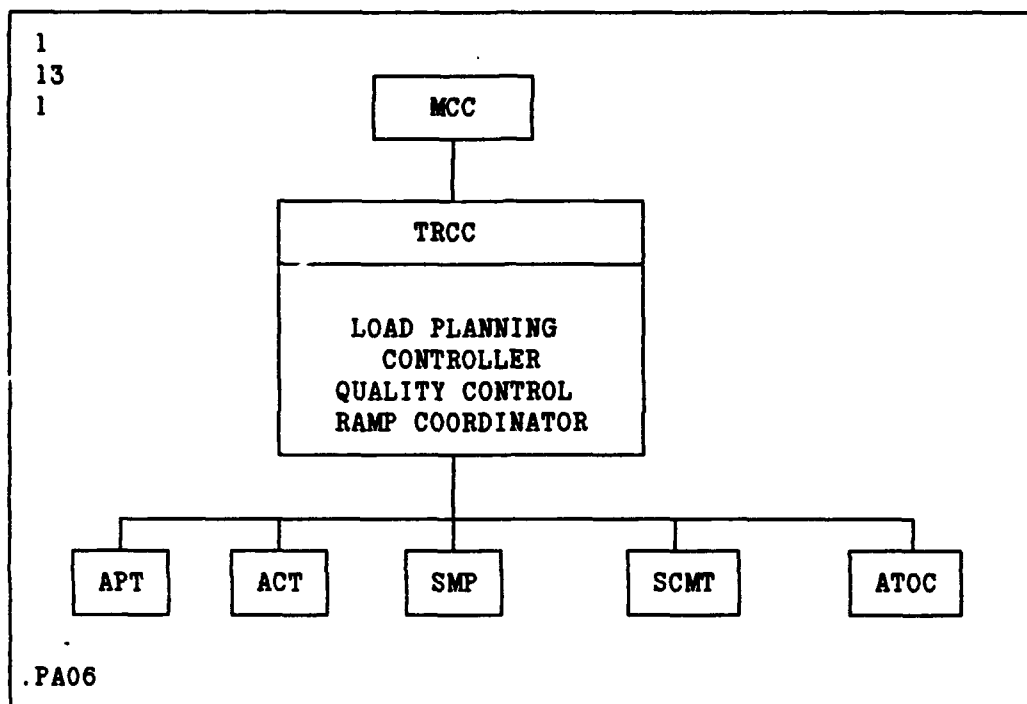
Figure 30. CBI Storyboard Number 5

DISPLAY ID: ORG CHART COURSE: DS-MO-006

OBJECTIVE #: 02

SUBJECT: AIR PASSENGER TERMINAL

SEQUENCE #: 02



SPECIAL INSTRUCTIONS

PAGE CODE: 1-13-1

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Figure 31. CBI Storyboard Number 6

DISPLAY ID: TRCC ORG COURSE: DS-MO-006

OBJECTIVE #: 02

SUBJECT: AIR PASSENGER TERMINAL

SEQUENCE #: 03

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ALL THE TRANSPORTATION WORK CENTERS REPORT TO THE
TRCC, WHO IS THE ^F13TRANSPORTATION^F14 DECISION
MAKER FOR THE MOBILITY PROCESS.

^F15*****^F14

THE TRCC IN TURN REPORTS TO THE MCC. THE MCC IS
RESPONSIBLE FOR THE MOBILITY ACTIONS OF THE
^F13ENTIRE BASE^F14.

.PA07

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F13: CHANGES COLOR TO MAGENTA

^F14: CHANGES COLOR TO YELLOW

^F15: CHANGES COLOR TO WHITE

Figure 32. CBI Storyboard Number 7

DISPLAY ID: SUBAREAS COURSE: DS-MO-006

OBJECTIVE #: 02

SUBJECT: AIR PASSENGER TERMINAL

SEQUENCE #: 04

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WITHIN THE TRCC, THERE ARE FOUR SUBAREAS:

^F15*****^F14

THE ^F13LOAD PLANNERS^F14 WHO PLAN WHAT EQUIPMENT AND
NUMBERS OF PASSENGERS (PAX) ARE GOING ON EACH AIRCRAFT;

THE ^F13CONTROLLER^F14 WHO POSTS THE STATUS BOARDS;

^F13QUALITY CONTROL^F14, THE SECTION THAT CHECKS ALL THE
PAPERWORK;

AND ^F13RAMP COORDINATOR^F14, THE TRCC'S REPRESENTATIVE
ON THE FLIGHTLINE.

.PA08

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F13: CHANGES COLOR TO MAGENTA

^F14: CHANGES COLOR TO YELLOW

^F15: CHANGES COLOR TO WHITE

Figure 33. CBI Storyboard Number 8

DISPLAY ID: INTRO

COURSE: DS-MO-006

OBJECTIVE #: 02

SUBJECT: AIR PASSENGER TERMINAL/SOE

SEQUENCE #: 05

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THE NEXT ITEM ON THE AGENDA IS THE SCHEDULE OF EVENTS
AND HOW IT IS USED TO POST THE STATUS BOARDS.

.PA09

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 34. CBI Storyboard Number 9

DISPLAY ID: SOE

COURSE: DS-MO-006

OBJECTIVE #: 02

SUBJECT: AIR PASSENGER TERMINAL

SEQUENCE #: 06

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THE FIRST THING YOU DO AFTER SIGNING IN AT YOUR
MOBILITY WORK AREA IS GLANCE AT THE SCHEDULE OF
EVENTS. THIS IS YOUR GUIDE FOR WHEN MOBILITY
ACTIONS HAVE TO BE COMPLETED.

.PA10

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 35. CBI Storyboard Number 10

DISPLAY ID: SOE

COURSE: DS-MO-006

OBJECTIVE #: 02

SUBJECT: AIR PASSENGER TERMINAL

SEQUENCE #: 07

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THE MOBILITY CONTROL CENTER (MCC) PUBLISHES THE
SCHEDULE OF EVENTS.

^F13*****^F14

LET'S TAKE A LOOK AT THE SCHEDULE OF EVENTS (AF FORMS
2511/2512) AND HOW IT IS USED TO POST OR PROGRAM THE
STATUS BOARDS. TURN TO PAGE 'A' OF YOUR WORKBOOK.

.PA11

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F13: CHANGES COLOR TO MAGENTA

^F14: CHANGES COLOR TO YELLOW

Figure 36. CBI Storyboard Number 11

DISPLAY ID: SOE/2511 COURSE: DS-MO-006 OBJECTIVE #: 02B
SUBJECT: AIR PASSENGER TERMINAL/Form 2511 SEQUENCE #: 01

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THIS IS AN EXAMPLE OF THE PERSONNEL PROCESSING PORTION
OF THE SCHEDULE OF EVENTS, THE AF FORM 2511.

^F13*****^F14

ALL TIMES ON THE SCHEDULE OF EVENTS ARE NOT LATER THAN
TIMES. THESE TIMES ARE CLOSELY COORDINATED WITH THE
LOADING SCHEDULE TIMES. ^F12LATE PERSONNEL PROCESSING
TIMES COULD RESULT IN A LATE AIRCRAFT DEPARTURE^F14.

.PA12

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12: CHANGES COLOR TO RED
^F13: CHANGES COLOR TO MAGENTA
^F14: CHANGES COLOR TO YELLOW

Figure 37. CBI Storyboard Number 12

DISPLAY ID: SOE/2511 COURSE: DS-MO-006

OBJECTIVE #: 02B

SUBJECT: AIR PASSENGER TERMINAL/CHALKS

SEQUENCE #: 02

1
14
1

^F13LOAD/CHALK^F14 IS THE FIRST BLOCK. A CHALK IS THE
GROUP OF EQUIPMENT/PERSONNEL THAT GOES ON A SPECIFIED
AIRCRAFT. ^F13M001^F14 IS THE CHALK (OR LOAD) NUMBER THAT
DESIGNATES THE FIRST AIRCRAFT SCHEDULED TO DEPART.

.PA13

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F13: CHANGES COLOR TO MAGENTA

^F14: CHANGES COLOR TO YELLOW

Figure 38. CBI Storyboard Number 13

DISPLAY ID: SOE/2511 COURSE: DS-MO-006

OBJECTIVE #: 02B

SUBJECT: AIR PASSENGER TERMINAL/MPNS

SEQUENCE #: 03

1
14
1

MOBILITY POSITION NUMBERS AND DEPLOYMENT MANNING DOCUMENT
NUMBERS GO IN THE SECOND BLOCK. EACH UNIT THAT DEPLOYS
HAS A MOBILITY POSITION NUMBER CALLED A ^F12UNIT TYPE CODE
(UTC)^F14 AND A ^F12UNIT LINE NUMBER (ULN)^F14.

.PA14

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12: CHANGES COLOR TO RED

^F14: CHANGES COLOR TO YELLOW

Figure 39. CBI Storyboard Number 14

DISPLAY ID: SOE/2511 COURSE: DS-MO-006 OBJECTIVE #: 02B
SUBJECT: AIR PASSENGER TERMINAL/DMD NUMBER SEQUENCE #: 04

1
14
1

THESE NUMBERS ARE USED TO IDENTIFY UNITS ON CONTINGENCY
OR WAR PLANS. ^F12E1001^F15 IS A DEPLOYMENT MANNING
DOCUMENT NUMBER WHICH IDENTIFIES A SPECIFIC PERSON WHO
MUST DEPLOY.

.PA15

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12: CHANGES COLOR TO RED
 ^F15: CHANGES COLOR TO WHITE

Figure 40. CBI Storyboard Number 15

DISPLAY ID: SOE/2511 COURSE: DS-MO-006 OBJECTIVE #: 02B
SUBJECT: AIR PASSENGER TERMINAL/NUMBER PAX SEQUENCE #: 05

1
14
1

THE NEXT BLOCK STATES THE NUMBERS OF PASSENGERS (PAX)
WHO WILL BE DEPLOYING ON THAT AIRCRAFT. THESE PAX
WILL BE PICKED UP BY THE SUBMOTORPOOL DRIVERS AT A
PREDESIGNATED ^F12PICK-UP POINT^F14 (USUALLY THE UNIT
ASSEMBLY AREA) AND DELIVERED TO THE BASE MOBILITY
PROCESSING BUILDING.

.PA16

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12: CHANGES COLOR TO RED
 ^F14: CHANGES COLOR TO YELLOW

Figure 41. CBI Storyboard Number 16

DISPLAY ID: SOE/2511 COURSE: DS-MO-006 OBJECTIVE #: 02B

SUBJECT: AIR PASSENGER TERMINAL/ASSEMBLY TIME SEQUENCE #: 06

1
14
1

EACH UNIT'S PERSONNEL MUST BE AT THIS BUILDING NO
LATER THAN THE ^F12ASSEMBLY COMPLETE^F14 TIME.

.PA17

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12: CHANGES COLOR TO RED
 ^F14: CHANGES COLOR TO YELLOW

Figure 42. CBI Storyboard Number 17

DISPLAY ID: SOE/2511 COURSE: DS-MO-006

OBJECTIVE #: 02B

SUBJECT: AIR PASSENGER TERMINAL/MPR

SEQUENCE #: 07

1
14
1

NOTICE THE WORD ^F12MPR^F14 AT THE TOP OF THE SIXTH
COLUMN. THIS STANDS FOR 6F12MOBILITY POSITION ROSTER^F14.

^F13*****^F14

THE PERSONNEL OFFICE SENDS EACH UNIT AN MPR WITH THE NAMES
OF ALL UNIT PEOPLE WHO DEPLOY (BOTH PRIMARY AND ALTERNATES).

.PA18

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12: CHANGES COLOR TO RED

^F14: CHANGES COLOR TO YELLOW

Figure 43. CBI Storyboard Number 18

DISPLAY ID: SOE/2511 COURSE: DS-MO-006

OBJECTIVE #: 02B

SUBJECT: AIR PASSENGER TERMINAL/MPR

SEQUENCE #: 08

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14
1

DURING UNIT ASSEMBLY, A UNIT REPRESENTATIVE
HIGHLIGHTS ON THE MPR THOSE WHO WILL BE DEPLOYING.
ALL OTHERS ARE LINED OUT.

.PA19

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 44. CBI Storyboard Number 19

DISPLAY ID: SOE/2511 COURSE: DS-MO-006

OBJECTIVE #: 02B

SUBJECT: AIR PASSENGER TERMINAL/PRO SEARCH

SEQUENCE #: 09

1
13
1

ALSO, A PERSON AUTHORIZED BY THE UNIT'S COMMANDER
WILL SEARCH THE BAGGAGE FOR PROHIBITED ITEMS.

.PA20

SPECIAL INSTRUCTIONS

PAGE CODE: 1-13-1

COLOR: MAGENTA FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 45. CBI Storyboard Number 20

DISPLAY ID: SOE/2511 COURSE: DS-MO-006 OBJECTIVE #: 02B
SUBJECT: AIR PASSENGER TERMINAL/SEARCH LTR SEQUENCE #: 10

1
14
1

EACH COMMANDER CERTIFIES, BY LETTER, WHO CAN
SEARCH. THIS LETTER WILL BE AVAILABLE AT THE
BAGGAGE IN-CHECK AREA DURING MOBILITY.

.PA 21

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 46. CBI Storyboard Number 21

DISPLAY ID: SOE/2511 COURSE: DS-MO-006 OBJECTIVE #: 02B
SUBJECT: AIR PASSENGER TERMINAL/PAX PROCESSING SEQUENCE #: 11

1
14
1

^F13*****^F14

THE NEXT TWO BLOCKS SPECIFY THE TIMES WHEN THE PAX
MUST ^F12START^F14 AND ^F12COMPLETE^F14 PROCESSING
THROUGH THE MOBILITY LINE.

^F13*****

.PA 22

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12 CHANGES COLOR TO RED	HIGHLIGHTING ADDED FOR
^F13 CHANGES COLOR TO MAGENTA	EMPHASIS
^F14 CHANGES COLOR TO YELLOW	

Figure 47. CBI Storyboard Number 22

DISPLAY ID: SOE/2511 COURSE: DS-MO-006 OBJECTIVE #: 02B
SUBJECT: AIR PASSENGER TERMINAL/PAX BRF COMP SEQUENCE #: 12

1
15
1

^F12PAX BRIEFING COMPLETE^F15 IS THE NEXT BLOCK. ALL
PASSENGERS RECEIVE A MISSION BRIEFING BEFORE THEY
ARE RELEASED TO THEIR TROOP COMMANDER FOR LOADING
ONTO THE AIRCRAFT.

.PA` 23

SPECIAL INSTRUCTIONS

PAGE CODE: 1-15-1 COLOR: WHITE FOREGROUND/BLUE BACKGROUND

OTHER: ^F12 CHANGES COLOR TO RED
^F15 CHANGES COLOR TO WHITE

HIGHLIGHTING ADDED FOR EMPHASIS

Figure 48. CBI Storyboard Number 23

DISPLAY ID: SOE/2511 COURSE: DS-MO-006 OBJECTIVE #: 02B
SUBJECT: AIR PASSENGER TERMINAL/ETD SEQUENCE #: 13

1
14
1

^F12ETD^F14 ON THE LAST COLUMN STANDS FOR ^F12ESTIMATED
TIME OF DEPARTURE^F14. ^F12ETD^F14 IS THE TIME THE
AIRCRAFT IS SCHEDULED TO DEPART.

^F13*****^F14

THE ^F12REMARKS^F14 SECTION WILL CONTAIN INFORMATION
SUCH AS AIRCRAFT TYPE BY CHALK NUMBER.

.PA 24

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12 CHANGES COLOR TO RED
^F13 CHANGES COLOR TO MAGENTA
^F14 CHANGES COLOR TO YELLOW

HIGHLIGHTING USED FOR INCREASED EMPHASIS

Figure 49. CBI Storyboard Number 24

DISPLAY ID: SOE/2512 COURSE: DS-MO-006

OBJECTIVE #: 02A

SUBJECT: AIR PASSENGER TERMINAL/NLT TIMES

SEQUENCE #: 01

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14
1

TURN TO THE NEXT PAGE OF YOUR WORKBOOK. THIS IS THE
LOADING SCHEDULE PORTION OF THE SCHEDULE OF EVENTS, THE
AF FORM 2512. ALL THE TIMES ARE 'NOT LATER THAN' TIMES.

^F13*****^F14

THE LOADING SCHEDULE GIVES YOU AN IDEA HOW EVERY
SECTION WORKS TOGETHER TO MAKE MOBILITY FUNCTION.

.PA 25

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F13 CHANGES COLOR TO MAGENTA

^F14 CHANGES COLOR TO YELLOW

Figure 50. CBI Storyboard Number 25

DISPLAY ID: SOE/2512 COURSE: DS-MO-006

OBJECTIVE #: 02A

SUBJECT: AIR PASSENGER TERMINAL

SEQUENCE #: 02

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13
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AGAIN, LET'S TAKE A LOOK AT EACH BLOCK ON THE
AF FORM 2512.

.PA 26

SPECIAL INSTRUCTIONS

PAGE CODE: 1-13-1

COLOR: MAGENTA FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 51. CBI Storyboard Number 26

DISPLAY ID: SOE/2512 COURSE: DS-MO-006 OBJECTIVE #: 02A
SUBJECT: AIR PASSENGER TERMINAL/LOAD PLN SEQUENCE #: 03

1
14
1

^F15--^F14 LOAD PLANNING IS DONE BY THE TRANSPORTATION
 READINESS CONTROL CENTER (TRCC) LOAD PLANNERS.

^F15+++++++^F14

^F15--^F14 TDY ORDERS ARE PRODUCED BY THE PERSONNEL
 SECTION WITHIN THE MOBILITY PROCESSING UNIT (MPU)

.PA 27

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F14 CHANGES COLOR TO YELLOW
 ^F15 CHANGES COLOR TO WHITE

Figure 52. CBI Storyboard Number 27

DISPLAY ID: SOE/2512 COURSE: DS-MO-006

OBJECTIVE #: 02A

SUBJECT: AIR PASSENGER TERMINAL

SEQUENCE #: 04

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14
1

^F15--^F14 THE PAX MANIFEST IS YOUR SECTION'S RESPONSIBILITY

^F15+++++++^F14

^F15--^F14 THE AIR CARGO TERMINAL (ACT) HANDLES THE CARGO
 MANIFEST

.PA

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F14 CHANGES COLOR TO YELLOW

 ^F15 CHANGES COLOR TO WHITE

Figure 53. CBI Storyboard Number 28

DISPLAY ID: SOE/2512 COURSE: DS-MO-006 OBJECTIVE #: 02A

SUBJECT: AIR PASSENGER TERMINAL/MONITOR TIMES SEQUENCE #: 05

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13
1

MONITOR VERY CLOSELY THE TIMES FOR THE
'PAX MANIFEST TO QC' AND 'PAX LOADING'
BLOCKS. PASSENGERS (PAX) MUST BE LOADED
30 MIN PRIOR TO AIRCRAFT DEPARTURE.

.PA 29

SPECIAL INSTRUCTIONS

PAGE CODE: 1-13-1 COLOR: MAGENTA FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 54. CBI Storyboard Number 29

DISPLAY ID: 30E/2512 COURSE: DS-MO-006 OBJECTIVE #: 02A
SUBJECT: AIR PASSENGER TERMINAL/TEAM EFFORT SEQUENCE #: 06

1
14
1

^F12REMEMBER, MOBILITY IS A TEAM EFFORT.

EVERYONE MUST WORK TOGETHER FOR SUCCESS.^F14

.PA 30

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12 CHANGES COLOR TO RED
^F14 CHANGES COLOR TO YELLOW

Figure 55. CBI Storyboard Number 30

DISPLAY ID: STAT BRD COURSE: DS-MO-006

OBJECTIVE #: 03B

SUBJECT: AIR PASSENGER TERMINAL/SOE USED

SEQUENCE #: 01

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1

^F13LET'S TURN TO PAGE 'C' OF THE WORKBOOK.^F14

WHAT YOU SEE HERE IS A COPY OF THE APT STATUS
BOARD (PASSENGER PROCESSING CONTROL CHART). THE
SCHEDULE OF EVENTS IS USED TO POST INFORMATION
ON THIS BOARD PRIOR TO MOBILITY ACTIONS.

.PA 31

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F13 CHANGES COLOR TO MAGENTA

^F14 CHANGES COLOR TO YELLOW

Figure 56. CBI Storyboard Number 31

DISPLAY ID: STAT BRD COURSE: DS-MO-006 OBJECTIVE #: 03B
SUBJECT: AIR PASSENGER TERMINAL/MATCH BLOCKS SEQUENCE #: 02

1
14
1

STEPS IN POSTING THE STATUS BOARD

1. MATCH BLOCKS ON SCHEDULE OF EVENTS WITH
BLOCKS ON STATUS BOARD. TRANSFER INFORMATION
FROM THE SCHEDULE TO THE APPROPRIATE BLOCKS ON
THE BOARD.

.PA 32

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 57. CBI Storyboard Number 32

DISPLAY ID: STAT BRD COURSE: DS-MO-006

OBJECTIVE #: 03B

SUBJECT: AIR PASSENGER TERMINAL/SPOT

SEQUENCE #: 03

1
14
1

2. SOME BLOCKS, SUCH AS ^F13SPOT^F14 WILL NOT
HAVE INFORMATION AVAILABLE ON THE SCHEDULE
OF EVENTS. ASK THE TRCC FOR THIS INFORMATION.

^F11*****^F14

^F13SPOT^F14 BY THE WAY, IS THE AREA ON THE
FLIGHTLINE WHERE THE AIRCRAFT IS PARKED.

.PA 33

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F11 CHANGES COLOR TO CYAN
^F13 CHANGES COLOR TO MAGENTA
^F14 CHANGES COLOR TO YELLOW

HIGHLIGHTING USED FOR ADDED EMPHASIS

Figure 58. CBI Storyboard Number 33

DISPLAY ID: STAT BRD COURSE: DS-MO-006

OBJECTIVE #: 03B

SUBJECT: AIR PASSENGER TERMINAL/TIMES

SEQUENCE #: 04

1
14
1

3. TIMES ON THE SCHEDULE OF EVENTS ARE
SCHEDULED TIMES. ACTUAL TIMES WILL BE
DETERMINED DURING THE MOBILITY PROCESS.

.PA 34

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 59. CBI Storyboard Number 34

DISPLAY ID: PROBLEMS COURSE: DS-MO-006 OBJECTIVE #: 03C
SUBJECT: AIR PASSENGER TERMINAL/RELAY TIMES SEQUENCE #: 01

1
14
1

^F12RELAY ACTUAL PAX TIMES TO THE TRCC.^F14

^F11*****^F14

THE TRCC NEEDS TO KNOW BECAUSE THEY
COORDINATE SCHEDULE OF EVENTS REQUIREMENTS
WITH THE APT, ACT, AND MCC. THEY ARE THE
MANAGEMENT DECISION MAKERS FOR TRANSPORTATION.

.PA 35

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F11 CHANGES COLOR TO CYAN
^F12 CHANGES COLOR TO RED
^F14 CHANGES COLOR TO YELLOW

HIGHLIGHTING USED FOR ADDED EMPHASIS

Figure 60. CBI Storyboard Number 35

DISPLAY ID: PROBLEMS COURSE: DS-MO-006 OBJECTIVE #: 03C
SUBJECT: AIR PASSENGER TERMINAL/BUST SEQUENCE #: 02

1
13
1

```
*****
*
*      IT'S IMPORTANT THAT YOU PAY CLOSE ATTENTION      *
*
*      TO THE PROCESSING TIMES.  YOU DON'T WANT TO      *
*
*      ^F15BUST^F13 YOUR SCHEDULED TIMES!  THIS        *
*
*      COULD RESULT IN A LATE AIRCRAFT DEPARTURE.      *
*
*****
```

.PA 36

SPECIAL INSTRUCTIONS

PAGE CODE: 1-13-1 COLOR: MAGENTA FOREGROUND/BLUE BACKGROUND

OTHER: ^F13 CHANGES COLOR TO MAGENTA
 ^F15 CHANGES COLOR TO WHITE

Figure 61. CBI Storyboard Number 36

DISPLAY ID: PROBLEMS COURSE: DS-MO-006 OBJECTIVE #: 03C

SUBJECT: AIR PASSENGER TERMINAL/NOTIFY APTO SEQUENCE #: 03

1
14
1

POST ALL PROCESSING PROBLEMS IN THE REMARKS
SECTION OF THE STATUS BOARD AND NOTIFY THE
AIR PASSENGER TERMINAL OFFICER (APTO) AND
THE TRCC.

.PA 37

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 62. CBI Storyboard Number 37

DISPLAY ID: PROBLEMS COURSE: DS-MO-006 OBJECTIVE #: 03C

SUBJECT: AIR PASSENGER TERMINAL/ASK FOR HELP SEQUENCE #: 04

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14
1

DON'T BE AFRAID TO ASK THE APTO FOR HELP.

.PA 38

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 63. CBI Storyboard Number 38

DISPLAY ID: PROBLEMS COURSE: DS-MO-006 OBJECTIVE #: 03C
SUBJECT: AIR PASSENGER TERMINAL/INFORM TRCC SEQUENCE #: 05

1
13
1

```
*****  
*                                     *  
*      AND ALWAYS KEEP THE TRCC INFORMED SO THEY CAN      *  
*                                     *  
*      MAKE DECISIONS TO FORESTALL ANY POTENTIAL PROBLEMS! *  
*                                     *  
*****
```

.PA 39

SPECIAL INSTRUCTIONS

PAGE CODE: 1-13-1 COLOR: MAGENTA FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 64. CBI Storyboard Numoer 39

DISPLAY ID: QUESTION COURSE: DS-MO-006

OBJECTIVE #: Q03

SUBJECT: AIR PASSENGER TERMINAL/TIMES

SEQUENCE #: 01

1
14
1

^F13CHOOSE THE LETTER OF THE BEST ANSWER^F14

1. THE APT RELAYS ACTUAL COMPLETION TIMES TO

- A. ACT
- B. SMP
- C. MCC
- D. TRCC

^F13ANSWER: ^A01D^Y35^F

.PA 40

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^A01D: CUES COMPUTER THAT A ONE LETTER ANSWER, D, IS EXPECTED

^Y35^F: BRANCHES TO SCREEN 35 AFTER 3 WRONG ANSWERS

Figure 65. CBI Storyboard Number 40

DISPLAY ID: QUESTION COURSE: DS-MO-006 OBJECTIVE #: Q03
SUBJECT: AIR PASSENGER TERMINAL/SCH TIMES SEQUENCE #: 02

1
14
1

2. SCHEDULED TIMES ARE POSTED ON THE

- A. WARNING ORDER
- B. EXECUTION ORDER
- C. SCHEDULE OF EVENTS
- D. SCHEDULED MAINTENANCE LISTING

^F13ANSWER: ^A01C^Y31^F

.PA 41

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^A01C: ONE LETTER ANSWER, C, IS EXPECTED
^Y31^F: BRANCHES TO SCREEN 31 AFTER 3 WRONG ANSWERS

Figure 66. CBI Storyboard Number 41

DISPLAY ID: IN-CHECK COURSE: DS-MO-006

OBJECTIVE #: 04

SUBJECT: AIR PASSENGER TERMINAL

SEQUENCE #: 01

1
13
1

^F15+++++++^F13

THE NEXT SECTION COVERS IN-CHECK PROCEDURES.

^F15+++++++

.PA 42

SPECIAL INSTRUCTIONS

PAGE CODE: 1-13-1

COLOR: MAGENTA FOREGROUND/BLUE BACKGROUND

OTHER: ^F13 CHANGES COLOR TO MAGENTA

^F15 CHANGES COLOR TO WHITE

Figure 67. CBI Storyboard Number 42

DISPLAY ID: IN-CHECK COURSE: DS-MO-006

OBJECTIVE #: 04A

SUBJECT: AIR PASSENGER TERMINAL/MOP4

SEQUENCE #: 01

1
14
1

IN-CHECK PROCEDURES

1. ENSURE YOU HAVE A COPY OF MOP 4 (MOBILITY
OPERATING PROCEDURES). MOP 4 IS THE DIRECTIVE
WHICH PERTAINS TO THE APT.

.PA 43

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 68. CBI Storyboard Number 43

DISPLAY ID: IN-CHECK COURSE: DS-MO-006 OBJECTIVE #: 04A
SUBJECT: AIR PASSENGER TERMINAL/GREETES TC SEQUENCE #: 02

1
14
1 2. A BAGGAGE IN-CHECKER GREETES THE TROOP COMMANDER
 (TC) AS EACH BUS ARRIVES, AND ADVISES THE TC
 WHETHER PROCESSING WILL BE ON TIME.

 ^F13*****^F14

THE BAGGAGE IN-CHECKER THEN BRIEFS PASSENGERS ON
PROHIBITED ITEMS (SEE PAGES D AND E OF YOUR WORKBOOK).
A VERBAL BRIEFING IS NOT REQUIRED WHEN A CONSPICUOUS
SIGN IS DISPLAYED.

.PA 44

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F13 CHANGES COLOR TO MAGENTA
 ^F14 CHANGES COLOR TO YELLOW

Figure 69. CBI Storyboard Number 44

DISPLAY ID: IN-CHECK COURSE: DS-MO-006 OBJECTIVE #: 04A
SUBJECT: AIR PASSENGER TERMINAL/DESIGNATE TC SEQUENCE #: 03

1
14
1

3. APT IN-CHECKERS WILL DESIGNATE THE SENIOR
RANKING OFFICER OR NCO, EXCLUDING CHAPLAINS, AS THE
TROOP COMMANDER IF ONE HAS NOT ALREADY BEEN DESIGNATED.

.PA 45

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 70. CBI Storyboard Number 45

DISPLAY ID: BAGGAGE COURSE: DS-MO-006 OBJECTIVE #: 04B
SUBJECT: AIR PASSENGER TERMINAL/BAG LIMIT SEQUENCE #: 01

1
14
1

4. LIMIT PERSONNEL TO ^F15TWO^F14 PIECES OF CHECKED
BAGGAGE. TOTAL WEIGHT OF THE PIECES WILL NOT EXCEED
^F70^F14 POUNDS. THESE TWO PIECES ARE PERSONAL
BELONGINGS ^F15AND DO NOT INCLUDE MOBILITY BAGS OR
TOOL BOXES.

.PA 46

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F14 CHANGES COLOR TO YELLOW
^F15 CHANGES COLOR TO WHITE

WORDS HIGHLIGHTED FOR ADDED EMPHASIS

Figure 71. CBI Storyboard Number 46

DISPLAY ID: BAGGAGE

COURSE: DS-MO-006

OBJECTIVE #: 04B

SUBJECT: AIR PASSENGER TERMINAL/NO TRUNKS

SEQUENCE #: 02

1
13
1

■ FOOT LOCKERS OR TRUNKS WILL NOT BE ACCEPTED! ■

.PA 47

SPECIAL INSTRUCTIONS

PAGE CODE: 1-13-1

COLOR: MAGENTA FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 72. CBI Storyboard Number 47

DISPLAY ID: BAGGAGE COURSE: DS-MO-006 OBJECTIVE #: 04B
SUBJECT: AIR PASSENGER TERMINAL/DIMENSIONS SEQUENCE #: 03

1
14
1

CARRY-ON BAGGAGE WILL BE LIMITED TO ONE PIECE,
NOT TO EXCEED ^F1224 X 15 X 9 INCHES^F14 (L X W X H)
IN DIMENSIONS.

^F15*****^F14

^F15EXCESS BAGGAGE MUST BE AUTHORIZED ON TDY ORDERS.

.PA 48

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12 CHANGES COLOR TO RED
^F14 CHANGES COLOR TO YELLOW
^F15 CHANGES COLOR TO WHITE

Figure 73. CBI Storyboard Number 48

DISPLAY ID: IN-CHECK COURSE: DS-MO-006

OBJECTIVE #: 04A

SUBJECT: AIR PASSENGER TERMINAL/FORM 94

SEQUENCE #: 04

1
14
1

5. TURN TO PAGE F OF YOUR WORKBOOK. THIS IS
A PICTURE OF THE AF FORM 94, AIR BAGGAGE CLAIM
CHECK (BAGGAGE TAG).

.PA 49

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 74. CBI Storyboard Number 49

DISPLAY ID: IN-CHECK COURSE: DS-MO-006

OBJECTIVE #: 04A

SUBJECT: AIR PASSENGER TERMINAL/FORM 94

SEQUENCE #: 05

1
14
1

HAVE PASSENGERS PRINT THEIR FULL NAMES ON THE TOP
HALF OF THE AF FORM 94 ABOVE THE ^F15TO^F14 BLOCK.
THIS MAKES IT EASIER TO PULL NO-SHOW BAGGAGE.

^F11*****^F14

NEXT, HAVE THEM COMPLETE THE REST OF THE AF FORM 94
AND ATTACH IT TO THE OUTSIDE OF EACH PIECE OF
PERSONAL BAGGAGE.

.PA 50

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F11 CHANGES COLOR TO CYAN
 ^F14 CHANGES COLOR TO YELLOW

Figure 75. CBI Storyboard Number 50

DISPLAY ID: IN-CHECK COURSE: DS-MO-006

OBJECTIVE #: 04A

SUBJECT: AIR PASSENGER TERMINAL/FORM 1839

SEQUENCE #: 06

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14
1

IN ADDITION, EITHER ONE COMPLETED DD FORM 1839
OR A COPY OF THE TDY ORDERS ^F15MUST BE PLACED
INSIDE^F14 EACH PIECE OF PERSONAL BAGGAGE (NOT
REQUIRED IN SEALED MOBILITY BAGS).

.PA 51

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F14 CHANGES COLOR TO YELLOW
^F15 CHANGES COLOR TO MAGENTA

WORDS HIGHLIGHTED FOR ADDED EMPHASIS

Figure 76. CBI Storyboard Number 51

DISPLAY ID: IN-CHECK COURSE: DS-MO-006

OBJECTIVE #: 04A

SUBJECT: AIR PASSENGER TERMINAL/FORM 1839

SEQUENCE #: 07

1
14
1

ENSURE A DD FORM 1839, BAGGAGE IDENTIFICATION,
IS COMPLETED AND ATTACHED TO ALL ^F15HAND^F14
BAGGAGE (SEE WORKBOOK PAGE G).

^F11*****^F14

PRESSURE SENSITIVE LABELS MAY BE USED INSTEAD OF
THE DD FORM 1839.

.PA 52

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F11 CHANGES COLOR TO CYAN

^F14 CHANGES COLOR TO YELLOW

Figure 77. CBI Storyboard Number 52

DISPLAY ID: IN-CHECK COURSE: DS-MO-006

OBJECTIVE #: 04A

SUBJECT: AIR PASSENGER TERMINAL

SEQUENCE #: 08

1
14
1

^F15=====^F14

PERSONNEL MOVING VIA COMMERCIAL TRANSPORTATION
TO A PORT OF EMBARKATION (POE) WILL NOT
ATTACH AN AF FORM 94 TO BAGGAGE UNTIL BAGGAGE
IS PROCESSED AT THE POE.

^F15=====

.PA 53

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F14 CHANGES COLOR TO YELLOW

^F15 CHANGES COLOR TO MAGENTA

Figure 78. CBI Storyboard Number 53

DISPLAY ID: QUESTION COURSE: DS-MO-006 OBJECTIVE #: Q04
SUBJECT: AIR PASSENGER TERMINAL/BAGGAGE TAG SEQUENCE #: 01

1
14
1

THE BAGGAGE TAG ATTACHED TO CHECKED LUGGAGE IS:

- A. AF FORM 96
- B. AF FORM 98
- C. AF FORM 92
- D. AF FORM 94

^F13ANSWER: ^A01D^Y50^F

.PA 54

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^A: CUES COMPUTER THAT A QUESTION HAS BEEN ASKED
^Y50^F: BRANCHES TO PAGE 50 FOR REVIEW AFTER 3 WRONG ANSWERS
01D: ONE LETTER ANSWER, WITH D AS THE ANSWER

Figure 79. CBI Storyboard Number 54

DISPLAY ID: QUESTION COURSE: DS-MO-006 OBJECTIVE #: Q04
SUBJECT: AIR PASSENGER TERMINAL/MAX BAGGAGE SEQUENCE #: 02

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1

WHAT IS THE MAXIMUM AMOUNT OF PERSONAL BAGGAGE
ONE PERSON MAY CHECK IN?

- A. THREE
- B. TWO
- C. FIVE
- D. SIX

^F13ANSWER: ^A01B^Y46^F

.PA 55

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^A01B: CUES COMPUTER THAT QUESTION HAS BEEN ASKED, AND
ANSWER IS ONE LETTER LONG, AND ANSWER IS B.

^Y46^F: BRANCHES TO SCREEN 46 FOR REVIEW AFTER 3 WRONG
ANSWERS (^Y = BRANCH; ^F = FALSE)

Figure 80. CBI Storyboard Number 55

DISPLAY ID: IN-CHECK COURSE: DS-MO-006

OBJECTIVE #: 04A

SUBJECT: AIR PASSENGER TERMINAL/MSN BRIEF

SEQUENCE #: 09

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6. AFTER TAGGING BAGGAGE, HAVE EACH PERSON PUT THEIR
BAGGAGE ON THE CONVEYOR BELT. THEN DIRECT EACH PERSON
TOWARDS THE BLEACHERS WHERE THEY WILL RECEIVE A MISSION
AND MEDICAL BRIEFING FROM MPU PERSONNEL.

^F13*****^F14

THEY ARE THEN BRIEFED ON THE MPU LINE, AND STARTED
THROUGH.

.PA 56

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F13 CHANGES COLOR TO MAGENTA

^F14 CHANGES COLOR TO YELLOW

Figure 81. CBI Storyboard Number 56

DISPLAY ID: BAG WTS COURSE: DS-MO-006 OBJECTIVE #: 04D
SUBJECT: AIR PASSENGER TERMINAL/TRCC DECIDES SEQUENCE #: 01

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14
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BAGGAGE WEIGHTS

THE TRCC WILL NOTIFY YOU WHETHER TO USE
STANDARD WEIGHTS FOR PASSENGERS AND BAGGAGE,
OR TO ACTUALLY WEIGH THE BAGGAGE.

.PA 57

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 82. CBI Storyboard Number 57

DISPLAY ID: BAG WTS COURSE: DS-MO-006 OBJECTIVE #: 04D
SUBJECT: AIR PASSENGER TERMINAL/NONCOMBAT SEQUENCE #: 02

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IF STANDARD WEIGHTS ARE USED, THE FOLLOWING APPLIES:

NONCOMBAT EQUIPPED PERSONNEL (MILITARY AIR):

-- PASSENGER 150 POUNDS

-- HAND-CARRIED BAGGAGE . . 10 POUNDS

-- CHECKED BAGGAGE 70 POUNDS

.PA 58

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 83. CBI Storyboard Number 58

DISPLAY ID: BAG WTS COURSE: DS-MO-006 OBJECTIVE #: 04D
SUBJECT: AIR PASSENGER TERMINAL/COMMERCIAL SEQUENCE #: 03

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USE THE FOLLOWING STANDARD WEIGHTS FOR PERSONNEL
TRANSPORTED ON CONTRACTED COMMERCIAL AIRCRAFT:

-- PERSONNEL WITH HELMET, LCE, AND CARRY-ON BAG . . 215 POUNDS
-- PERSONNEL WITH HELMET, LCE, CARRY-ON BAG, M-16 . 225 POUNDS
-- PERSONNEL WITH CARRY-ON BAG ONLY 195 POUNDS

.PA 59

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 84. CBI Storyboard Number 59

DISPLAY ID: BAG WTS COURSE: DS-MO-006 OBJECTIVE #: 04D
SUBJECT: AIR PASSENGER TERMINAL/COMBAT SEQUENCE #: 04

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14
1

COMBAT EQUIPPED PERSONNEL:

-- PASSENGER 175 POUNDS
-- HAND-CARRIED BAGGAGE . . . 15 POUNDS
-- HAND-CARRIED WEAPON 10 POUNDS
-- CHECKED BAGGAGE 70 POUNDS
-- MOBILITY BAGS (EACH) . . . 25 POUNDS
-- TOOL BOX 55 POUNDS

.PA 60

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 85. CBI Storyboard Number 60

DISPLAY ID: BAG WTS COURSE: DS-MO-006 OBJECTIVE #: 04D
SUBJECT: AIR PASSENGER TERMINAL/ACTUAL WTS SEQUENCE #: 05

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14
1

WHEN ACTUAL WEIGHTS ARE REQUIRED, ASK EACH PASSENGER
FOR ACTUAL BODY WEIGHT AND WEIGH ALL CHECKED BAGGAGE
(FLOOR LOADED BAGGAGE)

^F11*****^F14

PROVIDE ACTUAL WEIGHTS TO THE APT CONTROLLER, WHO WILL
PASS THEM ON TO THE TRCC. ALSO LET THE CONTROLLER
KNOW WHETHER BAGGAGE WILL BE PALLETIZED OR FLOOR LOADED.

.PA 61

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F11 CHANGES COLOR TO CYAN
 ^F14 CHANGES COLOR TO YELLOW

Figure 86. CBI Storyboard Number 61

DISPLAY ID: PLT BAG COURSE: DS-MO-006 OBJECTIVE #: 04C
SUBJECT: AIR PASSENGER TERMINAL/PALLETIZED SEQUENCE #: 01

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14
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PALLETIZED BAGGAGE WILL BE TAKEN TO THE ACT AND WEIGHED.
ATTACH A PLACARD SHOWING THE TOTAL BAGGAGE WEIGHT AND
LOAD NUMBER TO EACH BAGGAGE PALLET.

^F11*****^F14

COORDINATE WITH APT CONTROLLER TO DETERMINE WHEN
AIRCRAFT IS READY TO ACCEPT PASSENGERS' BAGGAGE.

.PA 62

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F11 CHANGES COLOR TO CYAN
 ^F14 CHANGES COLOR TO YELLOW

Figure 87. CBI Storyboard Number 62

DISPLAY ID: PLT BAG COURSE: DS-MO-006 OBJECTIVE #: 04C
SUBJECT: AIR PASSENGER TERMINAL/IN-CHECKED SEQUENCE #: 02

1
14
1

PALLETIZED BAGGAGE WILL BE IN-CHECKED AND MARSHALLED
AT THE ACT. IT WILL REMAIN THERE UNTIL AIRCRAFT IS
READY TO BE LOADED.

^F13*****^F14

BAGGAGE TO BE FLOOR LOADED WILL BE WATCHED BY A
BAGGAGE HANDLER TO ENSURE SECURITY.

.PA 63

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F13 CHANGES COLOR TO MAGENTA
^F14 CHANGES COLOR TO YELLOW

Figure 88. CBI Storyboard Number 63

DISPLAY ID: PLT BAG COURSE: DS-MO-006

OBJECTIVE #: 04C

SUBJECT: AIR PASSENGER TERMINAL/SECURITY

SEQUENCE #: 03

1
14
1

^F12ENSURE SECURITY OVER PERSONAL BAGGAGE AND ^F14
^F12MOBILITY BAGS UNTIL LOADED ABOARD THE^F14
^F12AIRCRAFT.^F14

.PA 64

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12 CHANGES COLOR TO RED ^F12 CHANGE COLOR TO YELLOW

CODE PUT AT END OF EACH LINE TO KEEP BOX YELLOW AND TEXT RED

Figure 89. CBI Storyboard Number 64

DISPLAY ID: PLT BAG COURSE: DS-MO-006 OBJECTIVE #: 04C
SUBJECT: AIR PASSENGER TERMINAL/LOAD TEAM SEQUENCE #: 04

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14
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PALLETIZED BAGGAGE WILL BE LOADED ABOARD SUPPORT
AIRCRAFT BY THE ACT CARGO LOAD TEAMS. UNPALLETIZED
(FLOOR LOADED) BAGGAGE WILL BE LOADED BY APT PERSONNEL;
^F15PASSENGERS MAY BE REQUIRED TO ASSIST AS NECESSARY.

.PA 65

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F15 CHANGES COLOR TO WHITE

HIGHLIGHTING ADDED TO INCREASE EMPHASIS

Figure 90. CBI Storyboard Number 65

DISPLAY ID: IN-CHECK COURSE: DS-MO-006

OBJECTIVE #: 04A

SUBJECT: AIR PASSENGER TERMINAL/BAG TIMES

SEQUENCE #: 10

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14
1

RELAY BAGGAGE LOADING COMPLETION TIME TO THE
APT CONTROLLER WHO, IN TURN, NOTIFIES THE TRCC.

.PA 66

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 91. CBI Storyboard Number 66

DISPLAY ID: QUESTION COURSE: DS-MO-006 OBJECTIVE #: Q04
SUBJECT: AIR PASSENGER TERMINAL/NONCBT WTS SEQUENCE #: 03

1
14
1

STANDARD PASSENGER WEIGHTS FOR NONCOMBAT EQUIPPED
PERSONNEL DEPLOYING ON MILITARY AIRCRAFT ARE:

- A. 175 POUNDS
- B. 150 POUNDS
- C. 170 POUNDS
- D. 160 POUNDS

^F13ANSWER: ^A01B^Y58^F

.PA 67

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^A01B: CUES COMPUTER A ONE LETTER ANSWER, B, IS EXPECTED
^Y58^F: BRANCHES TO SCREEN 58 FOR REVIEW AFTER 3 WRONG
ANSWERS

Figure 92. CBI Storyboard Number 67

DISPLAY ID: QUESTION COURSE: DS-MO-006

OBJECTIVE #: Q04

SUBJECT: AIR PASSENGER TERMINAL/BAG WTS

SEQUENCE #: 04

1
14
1

STANDARD HAND-CARRIED BAGGAGE WEIGHTS FOR
NONCOMBAT EQUIPPED PERSONNEL ARE:

- A. 15 POUNDS
- B. 20 POUNDS
- C. 10 POUNDS
- D. 55 POUNDS

^F13ANSWER: ^A01C^Y58^F

.PA 68

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^A01C: KEYS COMPUTER A ONE LETTER ANSWER, C, IS EXPECTED
^Y58^F: BRANCHES TO SCREEN 58 AFTER 3 WRONG ANSWERS

Figure 93. CBI Storyboard Number 68

DISPLAY ID: MANIFEST COURSE: DS-MO-006

OBJECTIVE #: 05

SUBJECT: AIR PASSENGER TERMINAL

SEQUENCE #: 01

1
13
1

^F15+++++++^F13

THE LAST AREA WE WILL ADDRESS IS THE
PASSENGER MANIFESTING SECTION.

^F15+++++++

.PA 69

SPECIAL INSTRUCTIONS

PAGE CODE: 1-13-1

COLOR: MAGENTA FOREGROUND/BLUE BACKGROUND

OTHER: ^F13 CHANGES COLOR TO MAGENTA

^F15 CHANGES COLOR TO WHITE

Figure 94. CBI Storyboard Number 69

DISPLAY ID: MANIFEST COURSE: DS-MO-006

OBJECTIVE #: 05A

SUBJECT: AIR PASSENGER TERMINAL/I.D. CARD

SEQUENCE #: 01

1
14
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PASSENGER MANIFESTING

1. EACH PERSON UPON REACHING THE APT MANIFESTING
STATION, WILL PRESENT A MILITARY I.D. CARD.

.PA 70

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 95. CBI Storyboard Number 70

DISPLAY ID: MANIFEST COURSE: DS-MO-006

OBJECTIVE #: 05A

SUBJECT: AIR PASSENGER TERMINAL/VERIFY

SEQUENCE #: 02

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14
1

^F12THE MANIFESTER WILL VERIFY THAT THE PICTURE ON
THE CARD MATCHES THE PERSON PRESENTING IT.^F14

.PA 71

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12 CHANGES COLOR TO RED

^F14 CHANGES COLOR TO YELLOW

Figure 96. CBI Storyboard Number 71

DISPLAY ID: MANIFEST COURSE: DS-MO-006

OBJECTIVE #: 05B

SUBJECT: AIR PASSENGER TERMINAL/TYPE/PRINT

SEQUENCE #: 01

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2. THE MANIFESTER WILL THEN TYPE OR HAND PRINT THE
PERSON'S NAME, RANK, SSAN AND OTHER NEEDED INFORMATION
ON THE AF FORM 96, PASSENGER MANIFEST. (WORKBOOK PAGE H)

^F13*****^F14

WHEN DIRECTED BY THE APTO, A SEPARATE AF FORM 96
IS USED FOR THE TPCOP COMMANDER AND CARGO COURIERS,
AND ORDERS ARE ATTACHED.

.PA 72

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F13 CHANGES COLOR TO MAGENTA

^F14 CHANGES COLOR TO YELLOW

Figure 97. CBI Storyboard Number 72

DISPLAY ID: MANIFEST COURSE: DS-MO-006

OBJECTIVE #: 05B

SUBJECT: AIR PASSENGER TERMINAL/Form 96

SEQUENCE #: 02

1
14
1

TURN TO PAGE 'I' OF YOUR WORKBOOK. THIS IS
A SAMPLE OF THE AF FORM 96, PASSENGER MANIFEST,
SHOWING ONLY THE TC AND CARGO COURIERS.

^F13*****^F14

THE MANIFEST WILL BE ACCOMPLISHED BY COMPLETING
THE HEADING, FOOTING, AND ENTERING THE FOLLOWING
INFORMATION IN THE BODY:

.PA 73

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F13 CHANGES COLOR TO MAGENTA

^F14 CHANGES COLOR TO YELLOW

Figure 98. CBI Storyboard Number 73

DISPLAY ID: MANIFEST COURSE: DS-MO-006

OBJECTIVE #: 05B

SUBJECT: AIR PASSENGER TERMINAL/TC/CC

SEQUENCE #: 03

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1

A. NAME, RANK, AND ORGANIZATION OF THE TROOP
COMMANDER AND CARGO COURIERS.

^F13*****^F14

B. THE STATEMENT, "SEE ATTACHED TDY ORDERS FOR
NAMES OF PASSENGERS."

.PA 74

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 99. CBI Storyboard Number 74

DISPLAY ID: MANIFEST COURSE: DS-MO-006

OBJECTIVE #: 05B

SUBJECT: AIR PASSENGER TERMINAL/* AND WT

SEQUENCE #: 04

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14
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C. TDY ORDER NUMBER, DATE, AND ISSUING HEADQUARTERS
FOR EACH ATTACHED ORDER.

^F13*****^F14

D. TOTAL NUMBER AND WEIGHT OF PASSENGERS AND BAGGAGE
ON THE PASSENGER MANIFEST. PALLET AND NETS WEIGHTS
ARE INCLUDED WHEN THE BAGGAGE IS PALLETIZED.

.PA 75

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 100. CBI Storyboard Number 75

DISPLAY ID: MANIFEST COURSE: DS-MO-006

OBJECTIVE #: 05B

SUBJECT: AIR PASSENGER TERMINAL/BRF/SRCH

SEQUENCE #: 05

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E. THE STATEMENT, ^F12I CERTIFY THAT AN ANTI-HIJACKING
BRIEFING AND A SEARCH FOR HAZARDOUS MATERIALS HAS
BEEN CONDUCTED ON ALL PERSONNEL FOR WHOM I HAVE BEEN
DESIGNATED TROOP COMMANDER^F14.

^F13*****^F14

^F15THIS STATEMENT WILL BE SIGNED BY THE TROOP COMMANDER.

PA 76

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12 CHANGES COLOR TO RED ^F13 CHANGES COLOR TO MAGENTA
 ^F14 CHANGES COLOR TO YELLOW ^F15 CHANGES COLOR TO WHITE

HIGHLIGHTING USED TO INCREASE EMPHASIS

Figure 101. CBI Storyboard Number 76

DISPLAY ID: MANIFEST COURSE: DS-MO-006 OBJECTIVE #: 05B

SUBJECT: AIR PASSENGER TERMINAL/DAGGER/THETA SEQUENCE #: 06

1
14
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F. THE STATEMENT 'AUTHORITY TO MOVE PASSENGERS
WITH MATERIAL CODED 'F12DAGGER OR THETA'F14 IS
AUTHORIZED IAW 'F12AFR 71-4'F14, PARA 3-6', WHEN
APPLICABLE.

.PA 77

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: 'F12 CHANGES COLOR TO RED 'F14 CHANGES COLOR TO YELLOW
HIGHLIGHTING ADDED FOR INCREASED EMPHASIS

Figure 102. CBI Storyboard Number 77

DISPLAY ID: MANIFEST COURSE: DS-MO-006

OBJECTIVE #: 05B

SUBJECT: AIR PASSENGER TERMINAL/DAGGER

SEQUENCE #: 07

1
14
1 ^F12DAGGER^F14 ITEMS ARE CLASSES OF MATERIAL, SUCH AS
 'CLASS A' EXPLOSIVES, WHOSE DANGER IS SUCH THAT PAX
 ARE PROHIBITED.

 ^F13*****^F14

 IN SOME CASES, GUARDS AND COURIERS ARE ALLOWED ON
 THE AIRCRAFT CARRYING THESE ITEMS, BUT ^F12THE MAJOR
 COMMAND WHO OWNS THE AIRCRAFT HAS TO APPROVE THIS
 DEVIATION!^F14

.PA 78

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12 CHANGES COLOR TO RED ^F13 CHANGES COLOR TO MAGENTA
 ^F14 CHANGES COLOR TO YELLOW

HIGHLIGHTING ADDED FOR INCREASED EMPHASIS

Figure 103. CBI Storyboard Number 78

DISPLAY ID: MANIFEST COURSE: DS-MO-006

OBJECTIVE #: 05B

SUBJECT: AIR PASSENGER TERMINAL/THETA

SEQUENCE #: 08

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^F12THETA^F14 ITEMS ENCOMPASS MATERIAL SUCH AS SMOKE
GRENADES AND SIGNAL FLARES. THE ONLY PAX ALLOWED
WITH THETA ITEMS ARE DOD DUTY PAX.

^F13*****^F14

^F12THE AIR TERMINAL MANAGER CAN APPROVE THIS DEVIATION.

.PA 79

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12 CHANGES COLOR TO RED
^F13 CHANGES COLOR TO MAGENTA
^F14 CHANGES COLOR TO YELLOW

HIGHLIGHTING ADDED FOR INCREASED EMPHASIS

Figure 104. CBI Storyboard Number 79

DISPLAY ID: MANIFEST COURSE: DS-MO-006 OBJECTIVE #: 05B
SUBJECT: AIR PASSENGER TERMINAL/VALIDATE 96 SEQUENCE #: 09

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3. THE MANIFESTING CLERK WILL VALIDATE THE
AF FORM 96, PASSENGER MANIFEST BY COMPARING
THE NAMES ON THE MANIFEST WITH THE ORDERS.

^F13*****^F14

LINE OUT NAMES ON THE ORDERS WHICH DO NOT APPEAR
ON THE MANIFEST FOR THAT SPECIFIC AIRCRAFT^F15
(NO SHOWS).

.PA 80

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F13 CHANGES COLOR TO MAGENTA
^F14 CHANGES COLOR TO YELLOW
^F15 CHANGES COLOR TO WHITE

HIGHLIGHTING ADDED FOR INCREASED EMPHASIS

Figure 105. CBI Storyboard Number 80

DISPLAY ID: MANIFEST COURSE: DS-MO-006 OBJECTIVE #: 05B
SUBJECT: AIR PASSENGER TERMINAL/SPEC ORDERS SEQUENCE #: 10

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4. THE SPECIAL ORDERS, SHOWING NAMES OF PERSONNEL,
MAY BE ATTACHED TO THE PASSENGER MANIFEST IN LIEU
OF TYPING PASSENGER DATA ON THE MANIFEST.

.PA 81

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 106. CBI Storyboard Number 81

DISPLAY ID: RSPNSBLTS COURSE: DS-MO-006 OBJECTIVE #: 05A

SUBJECT: AIR PASSENGER TERMINAL/BAG INSPECTED SEQUENCE #: 03

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5. AFTER EACH PERSON'S NAME IS VERIFIED AS BEING
ON THE MANIFEST, HAND-CARRIED BAGGAGE WILL BE
INSPECTED FOR TAGS AND CORRECT SIZE.

.PA 82

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 107. CBI Storyboard Number 82

DISPLAY ID: RSPNSBLTS COURSE: DS-MO-006

OBJECTIVE #: 05A

SUBJECT: AIR PASSENGER TERMINAL/HOLD AREA

SEQUENCE #: 04

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6. AFTER INSPECTION, PASSENGERS ARE ESCORTED TO
THE HOLD AREA, WHERE THEY WILL WAIT UNTIL BUSES
ARRIVE TO TAKE THEM TO THE AIRCRAFT.

.PA 83

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1

COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER:

Figure 108. CBI Storyboard Number 83

DISPLAY ID: HOLD COURSE: DS-MO-006 OBJECTIVE #: 07A
SUBJECT: AIR PASSENGER TERMINAL/STERILE AREA SEQUENCE #: 01

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THE APTO WILL STATION PAX PERSONNEL AT DOORS TO
ENSURE PEOPLE DO NOT LEAVE.

```
+++++  
+  
+ ^F12THIS AREA IS CONSIDERED A STERILE HOLDING AREA.^F14 +  
+  
+ ^F12DO NOT LET PEOPLE LEAVE WITHOUT AN ESCORT!!^F14 +  
+  
+++++
```

.PA 84

SPECIAL INSTRUCTIONS

PAGE CODE: 1-14-1 COLOR: YELLOW FOREGROUND/BLUE BACKGROUND

OTHER: ^F12 CHANGES COLOR TO RED ^F14 CHANGES COLOR TO YELLOW

CODE AT END OF LINE ENSURES BOX STAYS YELLOW,
AND TEXT RED

HIGHLIGHTING ADDED FOR INCREASED EMPHASIS

Figure 109. CBI Storyboard Number 84

DISPLAY ID: FINAL

COURSE: DS-MO-006

OBJECTIVE #: 01

SUBJECT: AIR PASSENGER TERMINAL

SEQUENCE #: 03

```
1
13
1
^15+++++^F13

THANK YOU FOR PARTICIPATING IN THIS EXPERIMENT.

^F15*****^F13

YOU HAVE NOW COMPLETED THE APT TUTORIAL.

PLEASE ASK THE INSTRUCTOR FOR YOUR END-
OF COURSE EXAMINATION.

^F15+++++
.PA 85
```

SPECIAL INSTRUCTIONS

PAGE CODE: 1-13-1

COLOR: MAGENTA FOREGROUND/BLUE BACKGROUND

OTHER: ^F13 CHANGES COLOR TO MAGENTA

^F15 CHANGES COLOR TO WHITE

Figure 110. CBI Storyboard Number 85

Appendix B: Wright-Patterson APT Lesson Plan

1. Orientation	30 min.
a. Introduce yourself	Good Morning, I am
b. Course Title	The course title is
c. Objective	The course objective is
d. Rules of Conduct	The rules are: No smoking in the classroom. The only authorized smoking area is the break area, which is located (give directions). You may bring coffee and sodas in the classroom; however you must properly dispose of the trash. This classroom must be maintained in a neat and orderly manner.
e. Participation	I encourage participation during this course of instruction. Please be attentive and take notes.
f. Course Completion	There is a test at the end of this course. You must attain 80% to pass. Again I do encourage participation. When we are discussing an area you do not fully understand, please raise your hand and ask questions. The only dumb question is the one that doesn't get asked.
g. Disaster Procedures	We will evacuate through this door and we will meet in the south parking lot on the grass near Jackson Road. If we are on break, emergency evacuation plans are posted near all doors. Exit by the most direct route and go immediately to the evacuation meeting place.

h. Restate Objective

Again, the course objective is

i. Course Length

This course is 8 hours.
Testing will begin approximately at 1500 hrs.

Coffee is available. The
coffee pot is located
Soda machine is in the break
area.

OVERVIEW

a. The areas we will cover during this course of instruction will be:

(1) Required operational material. We will cover all necessary material and equipment needed to effectively process, brief, and load unit personnel and their baggage aboard support aircraft.

(2) Then we will take an in-depth look at the schedule of events (AF Form 2511/2512) and how it is used to post or program the status boards. Next we will discuss problems as they relate to SOE/status boards during the operation and importance of elevating, coordinating, upchanneling solutions to the problems.

(3) Speaking of upchanneling problems, now we will look at the passenger terminal organizational chart and how it fits in the overall mobility structure.

(4) Next we will begin to look into the nuts and bolts of the mobility Air Passenger Terminal. The first operational step is baggage in-check procedures. We will explain them in-depth and all look at baggage incheck responsibilities such as prohibitive item requirements, number of bags allowed per individual, bag tags and weight requirements per individual, palletizing or loose loading requirements.

(5) Next will be manifesting procedures and responsibilities. We will discuss the two means of manifesting, with or without orders, and then learn how to properly accomplish the AF Form 96 or the MAC Form 560. We will also show you how easy it is to identify the Troop Commander/Cargo Couriers and simulated recall personnel on the manifest as well as how to place the appropriate statements on the manifest and the distribution of the completed manifest.

(6) Now that we have in-checked and manifested the passengers, we will continue by covering pax briefing procedures and responsibilities. Each briefing must be clear and concise. First the Troop Commander briefing and second the passenger briefing. We will also cover the contents of these briefings.

(7) Next we come to the last of the nuts and bolts which is the load/holder procedures and responsibilities. We will discuss sterile area/security requirements and other hold/load responsibilities such as holding roll call, taking head count, loading pax and signing the manifest as the loader and delivering the signed copy to TCU/QC.

(8) Controller Responsibilities. All controllers are responsible

for coordinating/upchanneling and receiving and disseminating usable, understanding information. They also maintain event logs and often post current information on status boards. These are critical functions and the controllers must be good communicators dedicated to details. Controllers are like secretaries, they keep the operation going on time, error free with a complete log of events as they happen.

(9) Tug Driver responsibilities. Tug drivers must be licensed and observe all flightline safety rules. They must keep the equipment in good operating condition at all times.

(10) We will discuss flightline safety procedures and look at some of the dos and don'ts for a safe operation as far as operating vehicles and MHE, lifting techniques and tripping hazards.

REQUIRED OPERATIONAL MATERIALS

- a. Copy of MOPs 4 and 26
- b. Pax Processing Control Chart
- c. Communication Equipment
- d. Scales, Personal and Baggage
- e. Typewriters
- f. AF Forms 2279
- g. AF Form 96
- h. AF Form 94
- i. DD Forms 1839

- j. Trip Accident Insurance Forms
- k. 463L Pallets, plastic covers, nets, cargo straps, and AF Forms 2279
- l. MHE
- m. Reflective Vests
- n. Clipboards
- o. AF Forms 463
- p. Boarding Passes
- q. Events Log
- r. Gloves

- | | |
|--|---------------|
| <p>1. Explain schedule of Events AF Form 2511</p> <p>a. Personnel Processing</p> <ul style="list-style-type: none">(1) Chalk(2) Number of Pax(3) Pick-up Point(4) Assembly Complete(5) MPR to MPU(6) Processing Start/Complete(7) Pax Briefing Complete(8) ETD(9) Remarks | <p>5 Min</p> |
| <p>All times on the SOE are Not Later Than Times</p> | |
| <p>Remarks section will contain aircraft type by chalk number.</p> | |
| <p>2. Explain SOE AF Form 2512</p> <p>a. Loading Schedule</p> <ul style="list-style-type: none">(1) Chalk(2) Load Plan Complete(3) TDY Orders Complete(4) Pax Manifest to QC(5) Cargo Manifest to QC(6) Cargo Loading Start/Complete(7) Pax Loading Start/Complete(8) ACFT/CDR Briefing(9) ETD | <p>20 Min</p> |
| <p>All transportation requirements must be completed 30 Min prior to aircraft departure.</p> | |
| <p>3. Explain use of SOE and Posting Status Board</p> <p>a. Post Status Board</p> <ul style="list-style-type: none">(1) Chalk(2) Parking Spot(3) ACFT Type/Tail No. | <p>5 Min</p> |

<ul style="list-style-type: none"> (4) Dest - 3 Ltr code (XXX) (5) Sch versus Actual (NLT) (6) No. Pax (7) Pax Processing Start/Comp (8) Pax Brief Start/Comp (9) Manifest to QC (10) Cargo Loading Start/Comp (11) Pax Boarding Start/Comp 	
<ul style="list-style-type: none"> 4. Problems as indicated on boards <ul style="list-style-type: none"> a. Number of Pax b. Pax processing start/complete c. Pax briefing d. Pax manifest to QC e. Pax loading start/complete f. ETD 	<div>10 Min</div> <div>Post related problem on the problem status board. Coordinate them with the APTO and TCU.</div>
<ul style="list-style-type: none"> 5. Explain the Passenger Terminal Operational Chart <ul style="list-style-type: none"> a. Passenger In-check b. Passenger manifest c. Passenger briefing d. Passenger Hold/ Load e. Controllers f. Tug Drivers 	<div>10 Min</div>
<ul style="list-style-type: none"> 6. Explain Passenger In- Check Procedures <ul style="list-style-type: none"> a. Prohibitive Items b. Baggage Tags (AF Form 94) <ul style="list-style-type: none"> (1) Markings c. Limitations <ul style="list-style-type: none"> (1) Quantity (2 ea) (2) Size 	<div>Post Prohibitive Statement AF Form 94</div> <div>Checked - 2 Handcarry - 1</div> <div>9" x 15" x 24"</div>

- d. Weights
 - (1) Standard weights
 - (2) Body weight
 - (3) Baggage weight
 - e. Designate Troop Commander
7. Explain Passenger Manifesting Procedures
- a. Confirm number of pax
 - b. Obtain ACFT type and number
 - (1) AF Form 96
 - (2) MAC Form 560
8. Explain AF Form 96, Passenger Manifest
- a. Accomplish header data
 - (1) Carrier
 - (2) ACFT Number
 - (3) Origin
 - (4) Destination
 - (5) Manifest Number
 - (6) Trip Number and Date
 - (7) Cabin Attendant
9. Identify Troop Commander and Cargo Couriers on Manifest
- a. TC - Troop Commander
 - b. C - Cargo Courier
 - c. * - Simulated Recall
 - d. CC - Classified Courier

Provide actual weights to TCU Loadplanning via APT Controller

10 Min

Station - Three letter code, first number of Julian date type load, serial number will be the last three digits of the Julian date. The last digit will be in sequence for that day. i.e., SKF9P2441

5 Min

Use the following codes to identify the Troop Commander and Cargo Courier

TC - Troop Commander
C - Cargo Courier

This code should be typed above the name in Block 8b.

* - Simulated Recall should be typed above the rank in Block 8a.

- | | |
|--|---|
| <p>10. Block 8a</p> <p>a. Grade or Title
(1) Simulated recall personnel</p> <p>b. Name and SSAN</p> <p>c. Pieces</p> <p>d. Weight</p> <p>e. Passenger Weight plus baggage weight</p> <p>f. Authority</p> | <p style="text-align: right;">5 Min</p> <p>Use three characters i.e.
Lt. Col - LTC
Simulated recall personnel will be identified by placing an * above the rank.</p> <p>Weigh each passenger on chalks of 20 or less. Over 20 pax, weigh 20%.</p> |
| <p>11. Block 9, Date, Name and Grade</p> | <p style="text-align: right;">5 Min</p> |
| <p>12. Received Commander Certification Letter</p> <p>a. Two copies</p> | <p>QC - one copy
TC Folder - one copy</p> |
| <p>13. Validate Manifest</p> <p>a. AF Form 96</p> <p>b. TDY Orders</p> <p>c. Commander Certification Letter</p> | <p>Match manifested names with names on the TDY orders.</p> |
| <p>14. No-Shows</p> <p>a. Delete from manifest</p> <p>b. Notify TCU</p> | <p>Red line on orders</p> |
| <p>15. Accumulate Totals</p> <p>a. Pieces</p> <p>b. Baggage weight</p> <p>c. Pax weight</p> <p>d. Annotate anti-hijacking statement</p> | <p>Place pallet weight on manifest, i.e.,
463L pallet - 354
Baggage Wt - 1800
Gross Wt - 2154</p> |
| <p>16. Distribute Manifest</p> <p>a. TCU/QC - Five copies</p> <p>(1) ACFT Commander - three copies</p> <p>(2) Enroute stop one copy each</p> <p>(3) ALCE - one copy</p> | <p>NOTE: 15 copies for international flights</p> |

- b. TC - two copies
 - c. Hold/Loader - one copy
17. Passenger Briefing Procedures 5 Min
- a. Responsibilities
 - (1) Issue Boarding Pass
 - (2) Establish TC Commander
 - (3) Brief TC
 - (4) Brief Pax
 - (5) Pass briefing time to controller
 - (6) Have TC take roll call
18. Briefer Responsibilities
- a. Issue Boarding Pass
 - (1) Number passes 1 - 100
19. Establish Troop Commander Folder 15 Min
- a. Contents
 - (1) AF Form 96 - two copies
 - (2) AF Form 463 - six copies
 - (3) DD Form 173/3 two copies
 - (4) MOP 10
 - (5) MOP 16
 - (6) Commander Certification Letter
 - (7) Cargo Courier Package
20. Brief Troop Commander
- a. Briefing Content
 - (1) Responsibilities
 - (2) Duties
- Each boarding pass will have a number. Boarding pass numbers should match the numbers on the manifest.
- Give Troop Commander the folder.

- | | |
|---|---|
| <p>21. Brief Passengers</p> <p>a. Briefing Content</p> <ul style="list-style-type: none"> (1) Name of TC (2) AC Type and Tail Number (3) Mission Number (4) Destination and Enroute stop - if not classified (5) Duration of flight (6) Departure Time (7) Boarding Time (8) Flight meals (9) Flight insurance (10) Responsibilities to TC (11) Custom Requirements (12) Weather conditions | <p>10 Min</p> <p>If destination is classified, state: Your destination is classified.</p> |
| <p>22. Relay Briefing Times to Controller</p> | |
| <p>23. Roll Call</p> <p>a. Verify name and rank on manifest</p> <ul style="list-style-type: none"> (1) Seek TC's assistance (2) Ensure TC is identified on the manifest | |
| <p>24. Passenger Hold/Loader</p> <p>a. Responsibilities</p> <ul style="list-style-type: none"> (1) Assemble pax (2) Verify security (3) Inform TC on flight status (4) Maintain contact with TC (5) Establish and expand hold- | <p>10 Min</p> <p>Ensure security police or a representative is present or on call</p> |

- ing area as needed
- (6) Hold roll call
- (7) Delete no-shows
- (8) Load pax on bus
- (9) Senior police-
/TC collect ammo
- (10) Conduct head count
- (11) According to the Rampco load pax
- (12) Sign pax manifest
- (13) Relay start and completion time to the APT controller
- (14) Ensure no-show meals are removed

Notify APT Controller, TCU, QC, MCC

The signed copy is the station file copy.

25. Explain Controller Responsibilities
- a. Notify TCU of activation
 - b. Time hack from TCU and set clock
 - c. Receive lunch requests
 - d. Post and monitor board IAW SOE
 - e. Coordinate with TCU on changes to SOE
 - f. Main events log
 - g. Record times and keep board posted
 - h. Pass completion times to TCU in a timely manner
 - i. Anticipate and circle time within 30 minutes of busting

10 Min

- j. Notify TCU 15 minutes prior to busting time

26. Tug Drivers

15 Min

Responsibilities

- a. Must be licensed
- b. Have competency card
- c. Must obey traffic regulations
- d. Check tug prior to operation
- e. Inspect trailers
- f. Inspect all loads prior to moving
- g. No more than four trailers will be pulled at one time
- h. Operator will stop and sound horn prior to entering or exiting building
- i. All trailers and tugs parked on the ramp will be chalked
- j. Speed limits will be obeyed at all times
- k. Approaching aircraft, travel in a counterclockwise direction
- l. Circle of safety around aircraft is 10 feet
- m. Use guide within 10 feet of aircraft or inside building
- n. When backing, use spotter
- o. When leaving vehicle unattended, turn ignition off, put gear in park, set parking brake, and chalk vehicle

27. Troop Commander Responsibilities
- a. Assumes control of passengers manifested on flight
 - b. Obtain departure and reporting time information
 - c. Take roll call
 - c. Responsible for lunches
28. Safety
- a. Observe flight-line safety procedures
 - (1) No smoking on ramp
 - (2) No sitting or lying on ramp
 - (3) Protect ears
 - b. Danger Areas
 - (1) Turbine blades
 - (2) Auxiliary Power Units (APU)
 - (3) Ear protection
 - (4) Do not walk within 25 ft in front or 200 ft in rear of engine running
 - c. Vehicle and MHE Equipment
 - (1) Perform pre-operator's inspection
 - (2) Do not overload equipment
 - (3) Observe speed limits on flightline
 - (a) General purpose vehicles:
15 MPH
Maximum

5 Min

NOTE: MOP 10 lists all responsibilities

- 5 MPH
within
circle of
safety
 - (b) MHE
10 MPH
MAX
5 MPH
with
load
3 MPH
within
circle of
safety
- d. Proper Lifting
 - (1) Do not attempt
to overlift
your physical
ability
 - (2) Suggested
weight limits
Male - 75 lbs
Female - 50 lbs
- e. Lifting Techniques
 - (1) Position feet
correctly
 - (2) Crouch close
to load
 - (3) Back straight
 - (4) Full palm grasp
 - (5) Kinetic leg lift
NOTE: Set object
down in reverse
- f. Precautions
 - (1) Remove jewelry
 - (2) Use gloves and
safety toe shoes
 - (3) Inspect object
 - (4) Do not obstruct
view
 - (5) Do not turn at
waist
- g. Team Lifting
 - (1) If load is too
heavy, get help
 - (2) Lift together
 - (3) One person give
instructions

- h. Tripping Hazards
 - (1) Keep work area clean
 - (2) Clear path of objects

29. Passenger Processing Sequence

- a. Baggage Incheck
 - (1) Prohibited item briefing
 - (2) Check AF Form 94 for completion
 - (3) DD Form 1839 available
 - (4) Accept checked baggage (2 pieces)
 - (5) Hand carry
 - (6) Weigh baggage
- b. Mobility Processing Unit
 - (1) Eligibility, Emergency Data, Shots, ID Card, Dog Tags, Legal, Finance, Orders
- c. Manifesting
 - (1) Weights
 - (2) AF Form 96
 - (3) DD Form 1610
- d. Briefing
 - (1) Brief TC
 - (2) Brief chalk
 - (3) Destination
 - (4) Departure Time
 - (5) Customs
- e. Holders
 - (1) Maintain sterilization
 - (2) Roll call
- f. Loading
 - (1) Head count
 - (2) Load pax on aircraft
 - (3) Sign manifest
 - (4) Signed manifest to TCU/QC

Size 9" x 15" x 24"

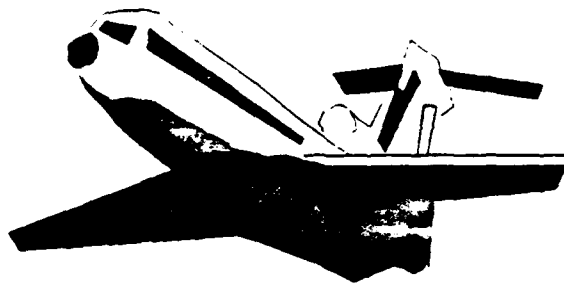
With referenced material and course publication, each student must demonstrate proficiency in this course by attaining a passing score of 80% on the end of course exam.

1 Hr

Appendix C: APT Workbook

The following twelve pages comprise the workbook used in the experiment. This workbook was utilized by both the test and control groups to clarify lesson objectives.

AIR PASSENGER TERMINAL (APT)



WORKBOOK

5 JUNE 1990

Figure 111. Workbook Coversheet

[illegible]

Figure 113. AF Form 2512

CHALK	UNIT/ ELEMENT	MISSION NUMBER	TYPE A/C CARRIER TAIL #	ETA ATA	PARK 'G		PAI	PAI CHECK IN	ORDERS REC'D	PAI BRIEF COMPL	PAI TR/MANIP CT TO QC	BAG LOAD COMPL	PAI LDC		ETD	REMARKS
					SPOT DEF	STA							START	CONCL		
						S										
						A										
						B										
						A										
						S										
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Figure 114. APT Status Board

PASSENGER PRE-BRIEFING ON PROHIBITED ITEMS

- *1. Welcome to the 2750th Air Base Wing Mobility Processing Center.
- *2. In the event that emergency evacuation is necessary, the double doors you just entered will be used. Proceed safely across the street to the grass area and maintain order.
- *3. The following briefing applies to personal, non-government, property. The posted board on the wall below the NO SMOKING sign lists the prohibited items as:
 - a. Shotguns with barrels under 18 inches long.
 - b. Rifles with barrels under 16 inches long.
 - c. Automatic weapons.
 - d. Switchblade knives.
 - e. Brass knuckles.
 - f. Incendiary devices, such as flares.
 - g. Tear gas or mace.
 - h. Gunpowder, cartridges, or primers.
 - i. Butane lighters with refillable reservoirs.

You may NOT take any of these items under any circumstances aboard the plane. It is a federal crime to carry or have in your possession any unauthorized weapon or explosive device on board the plane.

D

Figure 115. Passenger Prohibited Items Briefing (Page 1)

*4. You may carry cameras aboard support aircraft, however, you will not use flash attachments or bulbs. Flash bulbs may be carried in hand baggage only. At enroute stations cameras may be used in accordance with base regulations.

*5. Portable radios may be carried but not used aboard the aircraft.

*6. Individuals under the obvious influence of intoxicating beverages or narcotics will not be permitted aboard the aircraft. Consumption of alcoholic beverages will NOT be permitted aboard any aircraft.

*7. At the Air Passenger Terminal station on the processing line, each of you will be given an aircraft boarding pass. Safeguard this pass and provide it to the Air Passenger Terminal representative when exiting this building to go to the aircraft.

REPEAT -- You only provide this boarding pass to the Air Passenger Terminal representative when exiting this building to go to the aircraft.

*8. Prepare now to hand your baggage to the baggage in-checker.

*9. Thank you for your attention.

E

Figure 116. Passenger Prohibited Items Briefing (Page 2)

AF FORM 94, AIR BAGGAGE CLAIM TAG

FORM AF 94 JAN 78 PREVIOUS EDITION WILL BE USED.		AIR BAGGAGE CLAIM CHECK		COL FORTNEY		
TO	FLIGHT	TO				
XXX	FB001					
		DATE	XXX			
		1 SEPT 89				
FROM SKF				FLIGHT FB001		
STRAP CHECK NOT A CLAIM CHECK	K-1- 463-131					DATE
BAGGAGE CLAIM CHECK	K-1- 463-131					1 SEPT 89
FROM SKF						
Passengers will claim baggage by surrendering this stub at final destination shown on reverse side.				TO XXX		

F

Figure 117. Air Baggage Claim Tag

DD FORM 1839, BAGGAGE IDENTIFICATION

BAGGAGE IDENTIFICATION		
NAME (Last, First, M.I.)		
FORTNEY, YOLANDA		
STREET ADDRESS (Home or Unit/APO)		
DSQEB BLDG. 1562		
CITY, STATE, AND ZIP CODE		
KELLY AFB, TX 78241		
DD	FORM 1839 80 SEP	USE PREVIOUS EDITION

G

Figure 118. Baggage Identification

PASSENGER MANIFEST				(Check applicable box)		1. CARRIER	2. AIRCRAFT NO.
3. ORIGIN		4. DESTINATION (Name and location)		NONREVENUE	REVENUE	MAC	C-141/559
KELLY AFB, TX		CLASSIFIED (XXX)		5. MANIFEST NO. SKF9P001		6. TRIP NO. AND DATE FB001/9260	
7. CABIN ATTENDANT N/A							
8. MANIFEST							
LINE NO.	GRADE OR TITLE	U.S. ARMED FORCES PASSENGERS (Name and AFSN or SSAN) U.S. CIVILIANS AND FOREIGN NATIONALS (Name-Last, First, M.I., and Passport No.)	CHECKED BAGGAGE		PASSENGER WEIGHT PLUS CABIN BAGGAGE	AUTHORITY AND/OR PRIORITY IDENTIFICATION (HQS., Order No., and Date)	
			PIECES	WEIGHT			
1	COL	(TC) 111-11-1111 MARTINEZ, LOUIS	3	220	200	HQ 2954ABG, TA-155.01 SEP 89	
2		(CC) 122-33-3333 TAGLE, DIANA	3	100	106		
3		(C) 233-33-3333 TAMEX, ALFREDO	3	185	175		
4		344-44-4444 MATA, LILLIE	2	108	115		
5		455-55-5555 SCHOTT, JAN	2	115	101		
6		566-66-6666 STEWART, JOHNNIE	3	213	195		
7		677-77-7777 HILL, MINNIE	3	118	125		
8		788-88-8888 PONCE, ERNEST	3	235	179	TC - TROOP COMMANDER	
9		899-99-9999 HEICKMAN, KATHY	3	106	108	CC - CLASSIFIED COURIER	
10		099-99-9999 VILLA, ALMA	3	116	111	C - COURIER	
11		988-88-8888 FULLER, ALAN	3	210	198	WC - WEAPONS COURIER * - SIMULATED PAX	
12		011-00-0009 WALKER, SHARON	3	110	103	Pallet & Nets 354 Baggage wts. 2047	
13		012-12-1234 LECHNER, BIRDEAN	2	103	117	Gross Wts. 2401	
14		123-45-6789 SUTHERLAND, BELLA	2	98	100		
15							
16		I CERTIFY THAT AN ANTI-HIJACKING BRIEFING HAS BEEN CONDUCTED ON ALL PERSONNEL FOR WHOM I HAVE BEEN DESIGNATED				TROOP COMMANDER	
17							
18		SINGLE DAGGER/THETA (IF REQUIRED) AUTHORITY TO MOVE PASSENGERS WITH MATERIAL CODED SINGLE DAGGER/THETA				APPROVED. DEVIATION AFR 71-4 CHP 3, PARA 6 WAIVER NUMBER.	
19							
20							
TOTALS						TOTAL WEIGHT PASSENGERS AND ALL BAGGAGE	
9. ALL PASSENGERS AND BAGGAGE LISTED ON THIS MANIFEST HAVE BEEN LOADED.							
DATE 01 SEP 89		MANIFEST PREPARED BY (Typed name, grade, title) JACKIE GIL/SGT/PAX MANIFESTER				SIGNATURE OF LOADING SUPERVISOR (HOLD & LOAD PERSONNEL)	
10. ALL PASSENGERS AND BAGGAGE LISTED ON THIS MANIFEST HAVE BEEN RECEIVED EXCEPT AS CIRCLED AND NOTED ON REVERSE.							
DATE		PRINTED NAME, GRADE OR TITLE OF UNLOADING SUPERVISOR				SIGNATURE	

AF FORM 96
APR 88

H

Figure 119. Passenger Manifest

PASSENGER MANIFEST				(Check applicable box)		1. CARRIER	2. AIRCRAFT NO
				NONREVENUE	REVENUE	MAC	C-141/463
3. ORIGIN		4. DESTINATION (Name and location)		5. MANIFEST NO.	6. TRIP NO. AND DATE		7. CABIN ATTENDANT
KELLY AFB, TX		CLASSIFIED (XXX)		SKF9P002	FB001/9263		N/A
8. MANIFEST							
LINE NO.	GRADE OR TITLE	U.S. ARMED FORCES PASSENGERS (Name and AFSN or SSAN) U.S. CIVILIANS AND FOREIGN NATIONALS (Name-Last, First, M.I., and Passport No.)	CHECKED BAGGAGE		PASSENGER WEIGHT PLUS CABIN BAGGAGE	AUTHORITY AND/OR PRIORITY IDENTIFICATION (HQS., Order No., and Date)	
			PIECES	WEIGHT			
A.	B.	C.	D.	E.	F.		
1	1LT	(CC) 333-44-5555 HEICKMAN, KATHY				HQ MAC, SA-136, 03 SEP 89	
2	LTC	(TC) 111-22-3333 SUTHERLAND, BELLA					
3							
4		SEE ATTACHED TDY ORDERS FOR					
5		NAMES OF PASSENGERS					
6							
7							
8		35 PAX AND BAGGAGE @ 225LBS			7,875	(INCLUDES MOBILITY BAGS AND TOOL BOXES)	
9		10 PAX AND BAGGAGE @ 325LBS			3,250	(INCLUDES MOBILITY BAGS)	
10		5 PAX AND BAGGAGE @ 275LBS			1,375	(SHOW ONLY IF BAGGAGE IS PALLETIZED)	
11						Pallet and Nets 354 Baggage Wts. 3950	
12						Total 4304	
13							
14		I CERTIFY THAT AN ANTI-HIJACKING BRIEFING HAS BEEN CONDUCTED ON ALL PERSONNEL FOR WHOM I HAVE BEEN DESIGNATED TROOP COMMANDER.					
15							
16		SINGLE DAGGER/THETA (IF REQUIRED) AUTHORITY TO MOVE PASSENGERS WITH MATERIAL CODED SINGLE DAGGER/THETA					
17		APPROVED. DEVIATION AFR 71-4, CHP 3, PARA 6 WAIVER NUMBER.					
18							
19							
20							
TOTALS					12,500	TOTAL WEIGHT PASSENGERS AND ALL BAGGAGE	12,500
9. ALL PASSENGERS AND BAGGAGE LISTED ON THIS MANIFEST HAVE BEEN LOADED.							
DATE	MANIFEST PREPARED BY (Typed name, grade, title)				SIGNATURE OF LOADING SUPERVISOR		
03 SEP 89	KAREN TURNER/TSG/PAX MANIFESTER				(HOLD & LOAD PERSONNEL)		
10. ALL PASSENGERS AND BAGGAGE LISTED ON THIS MANIFEST HAVE BEEN RECEIVED EXCEPT AS CIRCLED AND NOTED ON REVERSE.							
DATE	PRINTED NAME, GRADE OR TITLE OF UNLOADING SUPERVISOR				SIGNATURE		

AF FORM 96
APR 88

I

Figure 120. Passenger Manifest

BAGGAGE WEIGHTS

A. THE TRCC WILL NOTIFY YOU WHETHER TO USE STANDARD WEIGHTS FOR PASSENGERS AND BAGGAGE, OR TO ACTUALLY WEIGH THE BAGGAGE.

B. IF STANDARD WEIGHTS ARE USED, THE FOLLOWING APPLIES:

- NONCOMBAT EQUIPPED PERSONNEL (MILITARY AIR):

-- PASSENGER 150 POUNDS

-- HAND-CARRIED BAGGAGE . . 10 POUNDS

-- CHECKED BAGGAGE 70 POUNDS

- USE THE FOLLOWING STANDARD WEIGHTS FOR PERSONNEL

TRANSPORTED ON CONTRACTED COMMERCIAL AIRCRAFT:

-- PERSONNEL WITH HELMET, LCE, AND CARRY-ON BAG - 215 LBS

-- PERSONNEL WITH HELMET, LCE, CARRY-ON BAG, M-16 - 225 LBS

-- PERSONNEL WITH CARRY-ON BAG ONLY - 195 LBS

- COMBAT EQUIPPED PERSONNEL:

-- PASSENGER 175 POUNDS

-- HAND-CARRIED BAGGAGE . . 15 POUNDS

-- HAND-CARRIED WEAPON . . . 10 POUNDS

-- CHECKED BAGGAGE 70 POUNDS

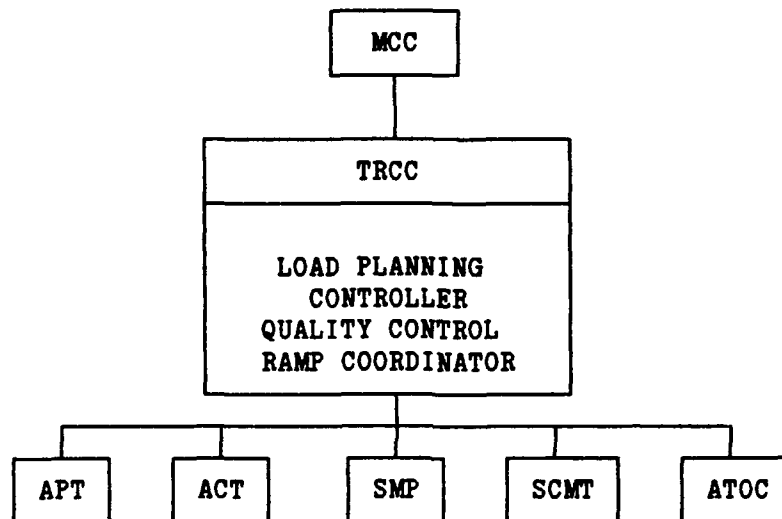
-- MOBILITY BAGS (EACH) . . 25 POUNDS

-- TOOL BOX 55 POUNDS

J

Figure 121. Baggage Weights

**TRANSPORTATION READINESS CONTROL CENTER (TRCC)
ORGANIZATION**



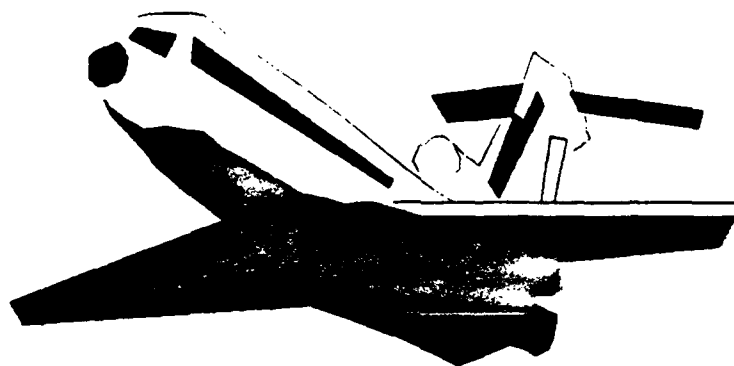
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Figure 122. TRCC Organizational Chart

Appendix D: Experiment Pretest and Posttest

The pretest/posttest was an examination compiled from two end-of-course evaluations presently utilized by the Wright-Patterson AFB transportation mobility training section. This multiple choice test, comprising 28 questions, can be found on pages 224-229.

AIR PASSENGER TERMINAL (APT)



EXAMINATION

5 JUNE 1990

1. The Schedule of Events is published by the _____ with scheduled times on the AF Form _____?
 - a. TCU on AF Form 2133/2515
 - b. MCC on AF Form 2511/2512
 - c. MPU on AF Form 1610/1611
 - d. SMP on AF Form 868/869

2. The APT controllers relay actual completion times to the:
 - a. TRCC
 - b. ACT
 - c. MCC
 - d. MPU

3. The TRCC is responsible for dispatching operational information to:
 - a. MCC and MOU
 - b. APT, ACT, MCC
 - c. MPU and SMP
 - d. APT, ACT, HEB

4. Load start and completion times will be passed to the _____ by the APT controller.
 - a. Manifester
 - b. Passenger in-check
 - c. TRCC
 - d. ACT

5. Deploying personnel are limited to two pieces of checked personal baggage not to exceed how many pounds?
 - a. 175
 - b. 150
 - c. 70
 - d. 66

6. Scheduled times are published on which AF Form?
- a. 2511/2512
 - b. 1/3
 - c. 2133
 - d. 2130
7. The troop commander will not be designated as such on the special orders, but his/her name will be annotated on what Air Force form?
- a. 164
 - b. 165
 - c. 94
 - d. 96
8. The APT baggage in-checkers must pass baggage weights to:
- a. TRCC controller
 - b. ACT controller
 - c. APT controller
 - d. MCC controller
9. When computing standard weights, a tool box weighs _____lbs:
- a. 150
 - b. 66
 - c. 175
 - d. 55
10. The APT manifester's name is typed on the:
- a. DD Form 1385, Cargo Manifest
 - b. AF Form 96, Passenger Manifest
 - c. TDY orders
 - d. PCS orders

11. A statement to the effect that passengers are authorized to ride with life threatening hazardous materials is found in what Air Force publication?
- a. 76-1
 - b. 71-4
 - c. 76-4
 - d. 71-2
12. A pallet weight is included on the passenger manifest when:
- a. The baggage is palletized
 - b. The baggage is floor loaded
 - c. The baggage is not loaded on the same aircraft as the passengers
 - d. The baggage has a different final destination than the passengers
13. The prohibited items statement is posted at the:
- a. Cargo marshalling area
 - b. Passenger briefing station
 - c. Form F Manifest
 - d. Passenger in-check station
14. The APT controller is responsible for:
- a. Notifying QC of an AF Form 2516 changes
 - b. Sending off-base messages by TWX
 - c. Monitoring and posting all start/completion times
 - d. Monitoring the Ramp Coordinator Log
15. What Air Force publication authorized Theta waivers for mobility deployments?
- a. AFR 28-4
 - b. AFR 76-1
 - c. AFR 71-4
 - d. AFR 28-2

16. The name of the AF Form 2512 is:
- a. Mobility Schedule of Events - Aircraft Loading Schedule
 - b. Mobility Schedule of Events - Pax Loading Schedule
 - c. Mobility Schedule of Events - ACT Loading Schedule
 - d. Mobility Schedule of Events - Loading schedule
17. What section is responsible for insuring completion of AF Form 94?
- a. Holders/Loaders
 - b. Quality Control
 - c. Mobility Processing Unit
 - d. In-Check
18. The MOP pertaining to the Air Passenger Terminal is:
- a. MOP 4
 - b. MOP 7
 - c. MOP 2
 - d. MOP 5
19. The baggage weight of palletized baggage is listed on:
- a. AF Form 96
 - b. AF Form 94
 - c. AF Form 98
 - d. AF Form 92
20. A duty of the TRCC controller is:
- a. briefing the cargo courier
 - b. Signing for cargo and passenger manifests
 - c. Coordinating schedule of events requirements with ACT, APT, and MCC
 - d. Coordinating schedule of events requirements with the MCC

21. The Prohibited Items Briefing statement on the passenger manifest is signed by:
- a. Briefer
 - b. Baggage In-Checkers
 - c. Hold/Loader
 - d. Troop Commander
22. Controllers must be able to extract information for their status boards by using:
- a. DD Form 1837
 - b. AF Form 2512
 - c. AF Form 2133
 - d. DD Form 1892
23. The Aircraft Loading Schedule form does not contain?
- a. Load Planning Complete
 - b. Cargo Manifest to QC
 - c. Aircraft Commander Briefed
 - d. Cargo Couriers Briefed
24. The DD Form which is affixed to hand carried baggage is:
- a. 1839
 - b. 1385
 - c. 13898
 - d. 1610
25. In-checkers will designate the:
- a. Senior ranking officer or NCO excluding chaplain as Troop Commander
 - b. Cargo Courier as Troop Commander
 - c. Unit Mobility NCO
 - d. TRCCO

26. The prohibited item briefing will be:
- a. conducted verbally by the briefers only
 - b. Conducted verbally by the TRCCO
 - c. Posted on a conspicuous sign and displayed at the in-check area and verbally by the briefer
 - d. Conducted verbally by loadmaster
27. The prohibited item briefing will be placed on the passenger manifest by the:
- a. Load/holder for the chalk
 - b. Manifester
 - c. Passenger briefer for the chalk
 - d. TRCC loadplanner
28. Hand carried baggage cannot exceed:
- a. 24" X 15" X 15"
 - b. 24" X 15" X 7"
 - c. 108" X 88" X 96"
 - d. 24" X 15" X 9"

Appendix E: Test and Control Groups' Orientation

GOOD MORNING. TODAY, WE ARE CONDUCTING AN EXPERIMENT TO DETERMINE THE APPLICABILITY OF COMPUTER-BASED INSTRUCTION VERSUS INSTRUCTOR-LED FOR MOBILITY TRAINING. THOSE OF YOU WHO SIGNED IN BESIDE EVEN NUMBERS HAVE BEEN CHOSEN TO TAKE THE INSTRUCTOR-LED PORTION OF THE EXPERIMENT. THE ODD NUMBERS WILL TAKE THE CBI PORTION.

BEFORE WE GET STARTED, MR. ODELL WILL GO OVER EVACUATION PROCEDURES IN CASE OF AN EMERGENCY, AND BATHROOM LOCATIONS. (GIVES DIRECTIONS ON FIRE EXITS AND BATHROOM LOCATIONS)

ALL OF YOU RECEIVED A FOLDER WHEN YOU SIGNED IN. INSIDE IS A TEST ON THE APT. TO THE RIGHT IS AN ANSWER SHEET. PLEASE WRITE YOUR NAME ON LINE (1). AT THE UPPER RIGHT HAND CORNER YOU WILL NOTICE FOUR LINES BEGINNING WITH (5). PLEASE WRITE IN THE FOLLOWING INFORMATION:

- (5) GRADE/RANK
- (6) AFSC/CIV EQUIVALENT
- (7) HOW MANY YEARS YOU'VE BEEN A MOB AUGMENTEE
IF SO, IN WHAT JOB(S)
- (8) DO YOU USE A COMPUTER IN YOUR DAILY JOB?
IF SO, HOW LONG HAVE YOU USED ONE?

NOW TURN TO THE TEST. DO THE BEST YOU CAN. WE WILL COLLECT THE ANSWER SHEETS WHEN YOU FINISH. WHEN EVERYBODY

HAS FINISHED, THE ODD NUMBERS WILL BOARD A BUS FOR THE
COMPUTER LABS AT AFIT. THERE YOU WILL RECEIVE THE CBI
PORTION OF THE EXPERIMENT. THE EVEN NUMBERS WILL REMAIN IN
THIS CLASSROOM AND RECEIVE THE INSTRUCTOR-LED PORTION.

Appendix F: Attitudinal Survey

We would like to know how you feel about the instructional program you just completed. This page contains 16 statements about computer training. You are to place beside each statement the number matching the statement on the scale that best describes how you feel. There are no right or wrong answers. We just want your honest opinion on each one of the statements.

STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
(1)	(2)	(3)	(4)	(5)

- Computer-assisted instruction is interesting.
- I learned a lot from this program.
- This program was not very challenging.
- I would rather have computer-based mobility training than instructor-led classroom training.
- Computers should not be used in training.
- Computers could assist instructors in teaching.
- Computer learning is fun.
- Computer-based training could eliminate human instructors.
- Computer teaching bothers me.
- I feel capable of learning from a computer.
- Computers should be used in mobility training.
- Computer-based instruction is a waste of time.
- I feel uncomfortable learning from a computer.
- Computer-based instruction should be used for refresher mobility training.

---- Computer-based instruction is boring.

---- Initial mobility training should be taught using
computer-based instruction.

Appendix G: Test Group's CBI Orientation

CBI INSTRUCTIONS FOR ROOM 210

1. GO OVER EVACUATION PROCEDURES AND BATHROOM LOCATIONS.
2. HAND OUT A DISK TO EACH PARTICIPANT
3. SAY THE FOLLOWING:
 - A. PRESS SPACE BAR TO GET HDM SCREEN
 - B. PRESS F3
 - C. PUT DISK IN LEFT SLOT AND LOCK IN
 - D. TYPE 'A:' AND THEN HIT RETURN
 - E. TYPE IN 'MYTUTOR'
 - F. TAP 'C'
 - G. TAP 'N'
 - H. HIT SPACE BAR
 - I. CHOOSE #1
 - J. JUST FOLLOW THE INSTRUCTIONS ON THE SCREEN
 - K. YOU WILL HAVE AN HOUR TO COMPLETE THE COMPUTER
BASED INSTRUCTION. WHEN YOU GET DONE, PLEASE ASK ME FOR THE
EXAMINATION.

CBI INSTRUCTIONS FOR ROOM 315

1. GO OVER EVACUATION PROCEDURES AND BATHROOM LOCATIONS.
2. HAND OUT A DISK TO EACH PARTICIPANT
3. SAY THE FOLLOWING:
 - A. FOLLOW INSTRUCTIONS ON SCREEN UNTIL YOU GET TO THE QUESTION: 'IS THE PROGRAM YOU WISH TO RUN ON A FLOPPY OR HARD DISK?' HIT 'F'
 - B. HIT 'F' AGAIN WHEN IT ASKS YOU WHERE TO STORE YOUR FILES.
 - C. INSERT DISK AND STRIKE ANY KEY.
 - D. AT THE 'A:' PROMPT, TYPE 'MYTUTOR'
 - E. TAP 'C'
 - F. TAP 'N'
 - G. HIT SPACE BAR
 - H. CHOOSE #1
 - I. JUST FOLLOW THE INSTRUCTIONS ON THE SCREEN
 - J. YOU WILL HAVE AN HOUR TO COMPLETE THE COMPUTER BASED INSTRUCTION. WHEN YOU GET DONE, PLEASE ASK ME FOR THE EXAMINATION.

Appendix H: Plan of Instruction

This appendix comprises an abbreviated version of the Wright-Patterson AFB Plan of Instruction for the Air Passenger Terminal (APT). The objective and subparagraph numbers match the objective and sequence numbers used on the CBI storyboards.

PLAN OF INSTRUCTION				
COURSE TITLE	PROCEDURES FOR PASSENGER MOBILITY OPERATIONS	DS-MO-006		
LEARNING OBJECTIVES	TIME	POI REF	CTS REF	CODE LEVEL
<p>01. ORIENTATION AND OVERVIEW</p> <p>a. Rules of conduct for students while participating in course of instruction.</p> <p>b. Course completion criteria.</p> <p>c. Procedures to be followed in the event of disaster in the area of instruction.</p> <p>d. Course objectives, blocks of instruction and course length.</p>	30 Min.	<p>01a</p> <p>01b</p> <p>01c</p> <p>01d</p>	NONE	NONE
<p><u>Student Instructional Materials</u></p> <p>None</p> <p><u>Visual Aids</u></p> <p>As required</p> <p><u>Instructor Guidance</u></p> <p>Introduce yourself and welcome students. Discuss student responsibilities, training unit policies and regulations. Distribute reference books and explain student care of materials and turn-in procedures at the end of the course. Discuss course completion criteria, testing procedures, passing points, and retraining opportunities. Discuss location of facilities, disaster shelters, and building evacuation plans. Briefly discuss the course objectives, instructional blocks and length of course.</p>				
COURSE NUMBER DS-MO-006	SEGMENT NUMBER	DATE	PAGE 1 OF 14	
AFLC FORM 852		PREVIOUS EDITION WILL BE USED		

Figure 123. Plan of Instruction Orientation and Overview

PLAN OF INSTRUCTION					
COURSE TITLE		PROCEDURES FOR PASSENGER MOBILITY OPERATIONS		DS-MO-006	
LEARNING OBJECTIVES		SUPPORT MATERIALS AND GUIDANCE			
		TIME	POI REF	CTS REF	CODE LEVEL
02. SCHEDULE OF EVENTS		20 Min.	02a	1	3c
<p>a. Given AFR 28-4 (or Base Plan 28-4) Identify the information contained on AF Form 2512, Schedule of Events - Aircraft Loading Schedule.</p> <p>b. Given AFR 28-4 (or Base Plan 28-4) Identify the information contained on AF Form 2511, Schedule of Events - Personnel Processing Schedule.</p>			<p><u>Student Instructional Materials</u> AFR 28-4 (or Base Plan 28-4) Workbook DS-MO-006</p> <p><u>Visual Aids</u> As Required</p> <p><u>Training Equipment</u> As Required</p> <p><u>Instructor Guidance</u> Use the AFR 28-4 to support objectives 02a, b. Workbook exercises are open book, open note. When all students have finished, discuss the correct answers and allow students to correct.</p>		
COURSE NUMBER	DS-MO-006	DATE	1 SEPT 89		
SEGMENT NUMBER		PAGE 2 OF 14			
AFLC FORM 852 PREVIOUS EDITION WILL BE USED					

Figure 124. Plan of Instruction Schedule of Events

PLAN OF INSTRUCTION				
COURSE TITLE		PROCEDURES FOR PASSENGER MOBILITY OPERATIONS		DS-MO-006
LEARNING OBJECTIVES		SUPPORT MATERIALS AND GUIDANCE		
<p>03. STATUS BOARD RESPONSIBILITIES</p> <p>a. Given AFR 28-4 (or Base Plan 28-4) identify the information contained on the TCU Status Board.</p> <p>b. Given AFR 28-4 (or Base Plan 28-4) identify the information contained on the APT Status Board.</p> <p>c. Given AFR 28-4 (or Base Plan 28-4) identify probable problem areas as indicated on status boards.</p> <p>d. Given AFR 28-4 (or Base Plan 28-4) identify the requirements to receive and number of pax and baggage weights.</p>	60 Min.	<p>POI REF</p> <p>03a 03b 03c</p> <p>CTS REF</p> <p>2a 2a 2b</p> <p>CODE LEVEL</p> <p>3c 3c 3c</p> <p>Student Instructional Materials AFR 28-4 (or Base Plan 28-4) Workbook DS-MO-006</p> <p>Visual Aids As Required</p> <p>Training Equipment As Required</p> <p>Instructor Guidance Use the AFR 28-4 to support objectives 03a, b, c. Have students answer the questions. Workbook exercises are open book, open note. When all students have finished, discuss the correct answers and allow students to correct.</p>		
COURSE NUMBER	DS-MO-006	SEGMENT NUMBER	DATE	PAGE 3 OF 14 PAGES 14
AFLC FORM 852		PREVIOUS EDITION WILL BE USED		

Figure 125. Plan of Instruction Status Board Responsibilities

PLAN OF INSTRUCTION				
COURSE TITLE	PROCEDURES FOR PASSENGER MOBILITY OPERATIONS	DS-MO-006		
LEARNING OBJECTIVES	TIME	POI REF	CTS REF	CODE LEVEL
04. PASSENGER IN-CHECK PROCEDURES	30 Min.	04a	3a, b, c, d	3c
a. Given AFR 28-4 (or Base Plan 28-4) identify in-check actions.		04b	3b	3c
b. Given AFR 28-4 (or Base Plan 28-4) identify personal baggage requirements.		04c	3d	3c
c. Given AFR 28-4 (or Base Plan 28-4) identify palletized baggage requirements.		04d	3e	3c
d. Given AFR 28-4 (or Base Plan 28-4) identify standard weight requirements.		<u>Student Instructional Materials</u> AFR 28-4 (or Base Plan 28-4) Workbook DS-MO-006 <u>Visual Aids</u> As Required <u>Training Equipment</u> As Required <u>Instructor Guidance</u> AFR 28-4 (or Base Plan 28-4) to support objective 04. Have students answer the questions. Workbook exercises are open book, open note. When all students have finished, discuss the correct answers and allow students to correct.		

COURSE NUMBER	DS-MO-006	SEGMENT NUMBER	1	DATE	1 SEPT 89	PAGE 4 OF 14
AFLC FORM 852 PREVIOUS EDITION WILL BE USED						

Figure 126. Plan of Instruction Passenger In-Check Procedures

PLAN OF INSTRUCTION				
COURSE TITLE		PROCEDURES FOR PASSENGER MOBILITY OPERATIONS		DS-MO-006
LEARNING OBJECTIVES		SUPPORT MATERIALS AND GUIDANCE		
		TIME	POI REF	CTS REF
05. PASSENGER MANIFESTING PROCEDURES		45 Min.		
a. Given AFR 28-4 (or Base Plan 28-4) identify the manifesters responsibilities.			05a	4a
b. Given AFR 28-4 (or Base Plan 28-4), AFR 71-4 and AFR 76-21, identify the manifest preparation actions.			05b	4b, 4c
c. Given AFR 28-4 (or Base Plan 28-4) identify manifest distribution requirements.			05c	4d
			<u>Student Instructional Materials</u> AFR 28-4 (or Base Plan 28-4) AFR 71-4 and AFR 76-21 Workbook DS-MO-006 <u>Visual Aids</u> As Required <u>Training Equipment</u> As Required <u>Instructor Guidance</u> Use the AFR 28-4 (or Base Plan 28-4) to support objectives 05a, b, and c. Have students answer the questions. Workbook exercises are open book, open note. When all students have finished, discuss the correct answers and allow students to correct.	
COURSE NUMBER	DS-MO-006	SEGMENT NUMBER	DATE	1 SEPT 89
AFLC FORM 852		PREVIOUS EDITION WILL BE USED		
		PAGE 5	OF	PAGES 14

Figure 127. Plan of Instruction Passenger Manifesting Procedures

PLAN OF INSTRUCTION				
COURSE TITLE		PROCEDURES FOR PASSENGER MOBILITY OPERATIONS		DS-MO-006
LEARNING OBJECTIVES		SUPPORT MATERIALS AND GUIDANCE		
		TIME	POI REF	CTS REF
07. PASSENGER HOLD/LOAD		20 Min.	07a	6a, 6b
a. Given AFR 28-4 (or Base Plan 28-4) identify hold procedures.			07b	6c
b. Given AFR 28-4 (or Base Plan 28-4) identify processing procedures while having passengers board.			07c	6d
c. Given AFR 28-4 (or Base Plan 28-4) identify completion of passenger manifest.				
			<p>Student Instructional Materials AFR 28-4 (or Base Plan 28-4) Workbook DS-MO-006</p> <p>Visual Aids As Required</p> <p>Training Equipment As Required</p> <p>Instructor Guidance Use the AFR 28-4 (or Base Plan 28-4) to support objectives 07a, b, and c. Have students answer questions. Workbook exercises are open book, open note. When all students have finished, discuss the correct answers and allow students to correct.</p>	
COURSE NUMBER	DS-MO-006	DATE	1 SEPT 89	
SEQUENCE NUMBER		PAGE	7 OF 14	
AFPLC FORM 852 PREVIOUS EDITION WILL BE USED				

Figure 128. Plan of Instruction Passenger Hold/Load

Bibliography

1. Allred, Kathie F. and Craig Locatis. "Research, Instructional Design, and New Technology," Journal of Instructional Development, 11: 2-5 (Winter 1988).
2. Aston, Mike. "Professional Development and Teacher Education--Have We Got It Right?", Computers & Education, 12: 79-83 (Winter 1988).
3. Barstow, Daniel. "Computers and Education: Some Questions of Value," The Journal of Computers in Mathematics and Science Teaching: 8-12 (Fall 1983).
4. Brink, Larry. "What's So Special About CBT?", Data Training: (March 1986).
5. Cathers, Gary, Computer Programmer. Telephone interview. 3790 Medical Service Training Wing, Medical Information Systems Division, Shepherd AFB TX, 3 May 1990.
6. Crowe, Adm William J., Jr. "U.S. Forces: The Global Balance," Defense 89: 2-3 (May/June 1989).
7. Damarin, Suzanne K. "Recontextualizing Computers in Education: A Response to Streibel," Educational Communication and Technology Journal, 36: 147-152 (Fall 1988).
8. Danley, William E. and Cliff Baker. "Comparing a Pre-Service Mainstreaming Class Taught by Traditional Methods with a Similar Class Taught by Computer-Assisted Instruction," Computers in the Schools, 5: 251-255 (Winter/Spring 1988).
9. Davis, Kristie Y. and Milton Budoff. Using Authoring in Education. Cambridge, Massachusetts: Brookline Books, Inc., 1986.
10. "Defense Transportation: A Joint American Enterprise," Defense Transportation Journal: 26-28 (August 1988).
11. Demers, W. A. "CBT: Lessons To Learn," Military Forum: 19-20 (May 1989).
12. Dennis, Carl, Training Specialist. Telephone interview. 3330 TCHTW/TTOZ, Chanute AFB IL, 3 May 1990.

13. Department of the Air Force. Basic Aerospace Doctrine of the United States Air Force. AFM 1-1. Washington: HQ USAF, March 1984.
14. -----. Computer-Based Instruction for Technical Training. ATCR 52-10. Randolph Air Force Base, Texas: HQ ATC, December 1987.
15. -----. Enlisted Transportation Advisory Group (ETAG) Minutes. 1-22. Headquarters 21st Tactical Fighter Wing (AAC), Elmendorf Air Force Base, Alaska, 1989.
16. -----. "Functional Management Inspection of Base-Level Mobility Training," TIG Report: 1-6 (May 1988).
17. -----. Functions of the Department of Defense and its Major Components. AFR 55-18. Washington: HQ USAF, October 1975.
18. -----. Reception Guide for Transportation Officers. Air Force Logistics Management Center Project LT861262. Gunter, Alabama, September 1987.
19. -----. Transportation Wartime Planning and Programming Guide. Washington: HQ USAF, May 1984.
20. -----. USAF Mobility Planning, AFR 28-4. Washington: HQ USAF, March 1987.
21. Dick, David W. The Job Skills Education Program: Extended Tryout, August 1988. ARI Research Note 88-77. Alexandria, Virginia: U.S. Army Research Institute for the Behavioral and Social Sciences (AD-A199496).
22. D'Souza, Patricia V. "Computer Literacy in Today's Society," Educational Technology: 34-35 (August 1985).
23. Eisele, James E. "What's New in Computing?", Educational Technology: 24-25 (August 1985).
24. Emory, C. William. Business Research Methods. Homewood, Illinois: Irwin, 1985.
25. Flouris, George. "The Use of an Instructional Design Model for Increasing Computer Effectiveness," Educational Technology: 14-21 (January 1989).

26. Franklin, James L. "What's a Computer Doing in My Music Room?", Music Educators Journal: 29-32 (January 1983).
27. Fraser, Hugh W. "MicroComputers in Schools: Questions to be Asked," The Educational Forum, 50: 87-97 (Fall 1985).
28. Gray, Gen Alfred M., Jr. "The Marine Corps: Small Service, Many Missions," Defense 89: 20-26 (May/June 1989).
29. Greer, Lylvurn. Technical Applications Officer. Telephone interview. 3330 TCHTW/TTOZ, Chanute AFB IL, 9 March 1990.
30. Grimm, Curtis M. and James A. Kling. "Integrating MicroComputers into a Transportation and Logistics Curriculum," Defense Transportation Journal: 14-22 (October 1988).
31. Gross, Beatrice. "Can Computer-Assisted Instruction Solve the Dropout Problem?", Educational Leadership: 49-51 (February 1989).
32. Hazen, Margret. "Computer-Assisted Instruction with PILOT on the Apple Computer," Educational Technology: 20-22 (November 1982).
33. Heinich, Robert. "The Use of Computers in Education: A Response to Streibel," Educational Communication and Technology Journal, 36: 143-145 (Fall 1988).
34. Hocking, Joan. "The Computer in Higher Education: Not Just Another Mechanical Device," Educational Technology: 19-23 (August 1985).
35. Instructional Science and Development, Inc. Evaluation of the Prototype Air Transportation Computer-Based Training (ATCBT) System: Final Report, 14 February 1986. Contract F11623-85-D0003.
36. Ives, William. "CBT and the Cognitive Process," Data Training: 44-47 (October 1987).
37. Jorde, Paula. "MicroComputers: Tempering the Pro-Innovation Bias," Education, 106: 388-393 (Summer 1986).

38. Kearsley, Greg. Authoring: A Guide to the Design of Instructional Software. Reading, Massachusetts: Addison-Wesley Publishing Company, Inc., 1986.
39. Khan, Emdad H. "The Use of Computer-Assisted Learning in a Primary School," Computers & Education, 13: 355-362 (Fall 1989).
40. Larsen, Ronald E. "What Communication Theories Can Teach the Designer of Computer-Based Training," Educational Technology: 16-19 (July 1985).
41. Leiblum, Mark D. "Implementing Computer-Aided Learning in a University Environment: Some Practical Advice to a CAL Agency," Educational Technology: 27-31 (February 1989).
42. Lengen, Craig V. "Will We Effectively Use the Computer as a Tool in Education?", Educational Technology: 47-48 (September 1985).
43. Manion, Mary H. "CAI Modes of Delivery and Interaction: New Perspectives for expanding Applications," Educational Technology: 25-28 (January 1985).
44. Marien, Edward J. and Charles G. Evenson. "Education for Transportation Professionals: Practical Help from Universities," Defense Transportation Journal: 17-19 (August 1986).
45. Maze, Rick. "Panel Votes Strength Cuts of 36,500 in '91," The Air Force Times: 3,10 (August 6, 1990).
46. McClave, James T. and P. George Benson. Statistics for Business and Economics. San Francisco: Dellen Publishing Company, 1988.
47. "Military Trainers Convene in Biloxi," CBT Directions: 16-17 (July/August 1988).
48. Morgan, Leslie Z. "Computer-Assisted Instruction--How, When, and Why," Foreign Language Annals: 515-519 (December 1986).
49. Morrison, Gary R. and Steven M. Ross. "A Four-Stage Model for Planning Computer-Based Instruction," Journal of Instructional Development, 2: 6-13 (Winter 1988).

50. Nakhleh, Mary B. "An Overview of MicroComputers in the Secondary Science Curriculum," The Journal of Computers in Mathematics and Science Teaching: 13-21 (Fall 1983).
51. Oakes, Jeannie and Mark Schneider. "Computers and Schools: Another Case of ' . . . The More They Stay the Same'?", Educational Leadership: 73-79 (November 1984).
52. Patterson, Bea. Evaluating CBT Effectiveness. Wicat Systems, Inc., April 1987.
53. Pollock, Joellyn. "Authoring Courseware: No Skills Necessary?", Educational Technology: 44-48 (November 1985).
54. Pritchard, William H., Jr. et al. "A Review of Computer-Based Training Materials: Current State of the Art (Instruction and Interaction)," Educational Technology: 16-22 (July 1989).
55. Register, Lt Gen Benjamin F. "Challenges," Defense Transportation Journal: 16-19 (June 1985).
56. Renk, Capt Jeff. Telephone interview. 3302 TCHTS/CSSAC, Keesler AFB MI, 3 May 1990.
57. "Review & Outlook: Defense in Free Fall," The Wall Street Journal: A8 (July 30, 1990).
58. Rosenfeld, Barbara. "Can PILOT Help Educators?", Journal of Computers in Mathematics and Science Teaching: 37-39 (Summer 1987).
59. Ross, Steven M. and Padma G. Anand. "A Computer-Based Strategy for Personalizing Verbal Problems in Teaching Mathematics," Educational Communication and Technology Journal, 35: 151-162 (Fall 1987).
60. Sadler, Rhonda R. and Judi S. Coleman. "CBT Evaluation," Data Training: 53-54 (October 1986).
61. Sales, Gregory C. "Designing Feedback for CBI: Matching Feedback to the Learner and Learner Outcomes," Computers in the Schools, 5: 225-239 (1988).
62. Saylor, James H. and Patrick H. Waychoff. "Training Over the Horizon," Proceedings of the Society of Logistics Engineers Twenty-Third Annual Symposium. 445-452 (1988).

63. Schwandt, Lynn C. and Don E. Wiederanders. "MicroComputers and the Ultimate Good of Education," Educational Technology: 32-33 (August 1985).
64. Shlechter, Theodore M. An Examination of the Research Evidence for Computer-Based Instruction in Military Training: Interim Report, June 1985-June 1986. Technical Report 722. Alexandria, Virginia: U.S. Army Research Institute for the Behavioral and Social Sciences, August 1986.
65. Sinek, R. L. Computer-Based Training Technology: Overview and System Selection Criteria, 1 October 1986. NUSC Technical Document 6554. Newport, Rhode Island: Naval Underwater Systems Center (AD-A172988).
66. "Sixth National Strategic Mobility Conference: Summary Report," Defense Transportation Journal: 29-30 (August 1988).
67. Smith, Geoffrey W. "CAL: Improved Learning and Improved Teaching," Computers and Education, 10: 115-118 (Winter 1986).
68. Stewart, William J. "Computer-Aided Independent Study," Education, 106: 444-446 (Summer 1986).
69. Thoreson, Richard W. Cost-Effective Automation of Army Classroom Training: A Case Study, September 1988. ARI Research Note 88-121. Alexandria, Virginia: U.S. Army Research Institute for the Behavioral and Social Sciences (AD-A211748).
70. "Transportation Challenges in the 80s," Translog: 3-4 (December 1979).
71. Valdez, Gilbert. "Realizing the Potential of Educational Technology," Educational Leadership: 4-6 (March 1986).
72. Vuono, Gen Carl E. "The Army: A Trained, Ready, Strategic Force," Defense 89: 4-14 (May/June 1989).
73. Weber, Steve. "CBO Plan Would Oust 1 in 5 Career Airmen," The Air Force Times: 12 (August 6, 1990).
74. Wehr, Joe. "Instructor-Led or Computer-Based: Which Will Work Best for You?", Training and Development Journal: 18-21 (June 1988).

75. Welch, Gen Larry D. "The Air Force: Aerospace Defense for the Future," Defense 89: 27-33 (May/June 1989).
76. Welker, James D. "CAI PDQ," The Science Teacher: 47-49 (April 1985).
77. "What Teaches?" AFIT library file on Distance Education, Excerpt 5, Chapter 3.1: 33-36.
78. Whiting, John. "Student Opinion of Tutorial CAL," Computers and Education, 10: 281-292 (Spring 1986).
79. Wilson, Jack M. and Edward F. Redish. "Using Computers in Teaching Physics," Physics Today: 34-41 (January 1989).
80. Witthuhn, Janet L. "Planning for Technology: The Key to Successful Implementation," Educational Technology: 27-29 (August 1985).
81. Zaharias, Jane A. "MicroComputers in the Language Arts Classroom: Promises and Pitfalls," Language Arts, 60: 990-997 (November/December 1983).

Vita

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REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE September 1990	3. REPORT TYPE AND DATES COVERED Master's Thesis		
4. TITLE AND SUBTITLE COMPUTER-BASED INSTRUCTION WITHIN TRANSPORTATION MOBILITY TRAINING		5. FUNDING NUMBERS		
6. AUTHOR(S) Melissa A. Higginbotham, Captain, USAF				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Air Force Institute of Technology, WPAFB OH 45433-6583		8. PERFORMING ORGANIZATION REPORT NUMBER AFIT/GLM/LSM/90S-24		
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSORING / MONITORING AGENCY REPORT NUMBER		
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution unlimited		12b. DISTRIBUTION CODE		
13. ABSTRACT (Maximum 200 words) Computer-based instruction (CBI) was compared with instructor-led training using a pretest/posttest experimental design. The purpose was to demonstrate whether CBI was more effective than instructor-led for teaching transportation mobility. Results of the experiment indicated there was no statistical difference ($\alpha = .05$) between the two methods. An attitudinal survey administered to the CBI sample group indicated that participants felt CBI would be useful in supplementing instructors but not totally eliminating them. Demographic information revealed that survey results were independent of the number of years of computer usage and years of mobility experience.				
14. SUBJECT TERMS Mobility Training, CBI, Computer-Based Instruction, Training, Computer-Based Training, CBT, Computer-Assisted Instruction, CAI			15. NUMBER OF PAGES 265	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL	